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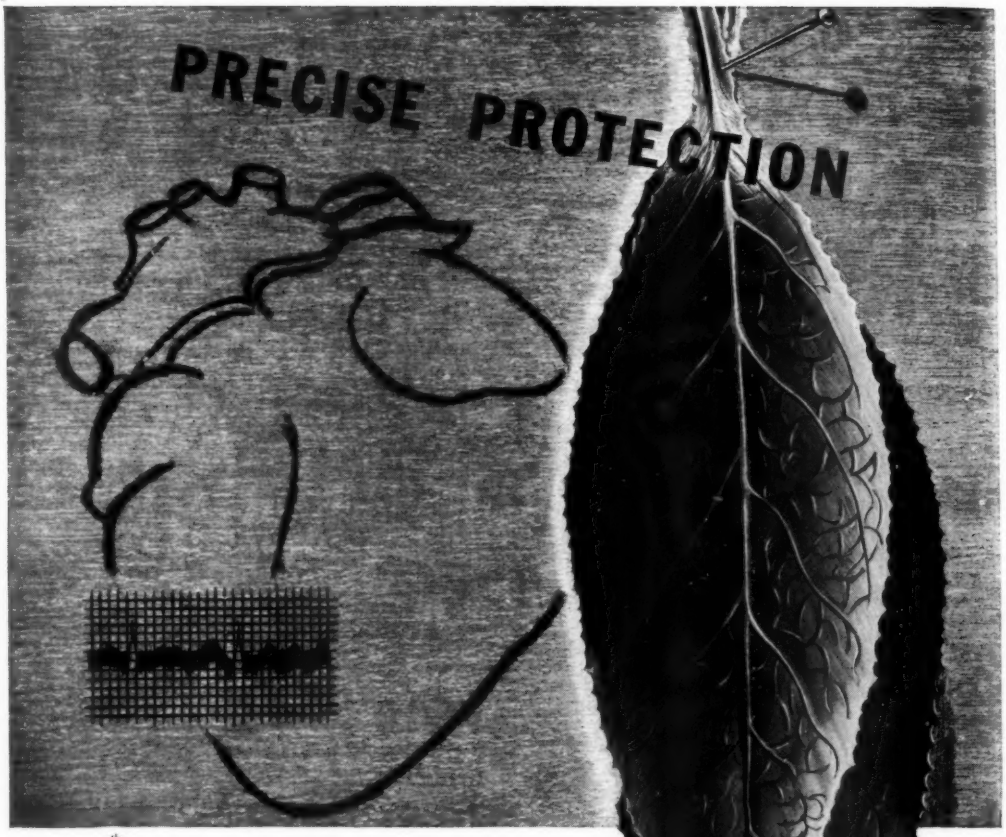

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

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Volume 26 August, 1943 No. 8

COMPRESSION FRACTURES OF THE SPINE

C. CURRY BELL, M.D.
Saint Paul, Minnesota

FRACTURES of the spine are important because the vertebral bodies are weight-bearing structures and because of the danger of associated damage to the spinal cord. Failure to correct deformity following such fractures changes the spinal curve and subjects the ligaments and muscles to abnormal stress which may cause a varying degree of permanent disability. Damage to the cord, other than simple contusion, cannot be repaired and may produce grave consequences. Complaints of pain, tenderness and limitation of motion are so common in individuals seeking damages following injuries to the back that one is frequently inclined not to take such complaints seriously. Because of the danger, however, of overlooking a compression fracture following even apparently slight injury, it is advisable to x-ray the spine in all back injuries. The main danger in failure to discover and adequately treat even a slight compression of a vertebra is that, as time passes, the degree of compression may increase with weight-bearing and cause real disability that could easily have been avoided.

Etiology

Compression fractures are not common in the first two decades because of the elasticity of intervertebral discs which permit a limited degree of bending strain without undue stress on the bodies of the vertebræ. These fractures are most common in the third and fourth decades when the discs have become less elastic, the vertebral bodies more highly calcified and more brittle, and the individual is still very active. Compression fractures are caused by a lever action resulting from a force so applied as to cause a jack-knifing of the spine, such as being struck by a falling object while in a stooping position, or falling in a sitting position, or on the head or shoulders. They are occasionally caused by falling from a height and striking on the feet and are then sometimes complicated by a fracture of the os calsis of one or both feet. Tobogganing is a common cause of compression fractures of the spine, because of the fact that making a jump while sitting on a toboggan results in a greater or lesser degree of forceful flexion of the spine. These fractures may occur in any part of the spine, but about two-thirds are in the lower portion, and most of these in the region of the eleventh and twelfth dorsal and first and second lumbar vertebræ.

Symptoms

The symptoms depend, of course, upon the location and extent of injury and may vary from pain with no external evidence of injury to complete motor and sensory paralysis with marked kyphosis and occasionally lateral deviation. The most constant symptoms are pain and tenderness which are increased on motion. With cord injury, motor and sensory paralysis may be partial or complete, and will be found up to the level of the lesion with an area of hyperesthesia just above the lesion. In complete tranverse lesions of the cord, the symptoms appear immediately with complete motor and sensory paralysis, flaccidity of the muscles, visceral paralysis and loss of the knee jerks. In partial lesions there may be an interval before the symptoms develop.

Read at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 17, 1943.

Some of the muscles are paralyzed and some are not, and there may be some muscle spasm. Some sensation remains, the knee jerks are usually present, and visceral paralysis may be absent.

Diagnosis

A history of an injury that might have caused sudden forceful flexion of the spine, followed by pain and tenderness, and aggravated by motion, is always suggestive of vertebral injury. In addition to this, there may be deformity or evidence of damage to the cord. The Soto-Hall sign is nearly 100 per cent accurate in diagnosis of these fractures. In this test acute flexion of the neck stretches the ligamentous attachment to the vertebræ, resulting in pain at the site of fracture. Definite diagnosis, however, is dependent upon good anteroposterior and lateral x-ray studies. The lateral view is especially important because of the fact that a moderate degree of compression cannot be seen in the anteroposterior view. Occasionally the only x-ray evidence of fracture is an area of increased density in the anterior margin of the vertebral body.

Treatment

First Aid.—In fractures of the cervical portion of the spine extension should be maintained by a pad under the back of the neck. The patient should be moved only with enough traction applied to the head to insure immobilization. In the lumbo-dorsal fractures, the patient should be transported in a prone position or in a supine position with a pillow or folded blanket under the site of fracture in order to maintain extension and prevent further injury. On arrival at a hospital x-ray studies should be made immediately, unless contra-indicated by the patient's general condition.

Active Treatment.—Formerly these fractures were treated mainly by prolonged bed rest with fixation by a plaster cast or a hyperextension frame with the hope of correcting the deformity and securing bony union. Fusion of the spine at the site of the fracture has also been attempted with the hope of preventing or lessening permanent disability. These methods proved unsatisfactory and usually resulted in a varying degree of permanent impairment of function. More recently various methods have been devised to correct actively the deformity of the vertebral body by extreme hyperextension and fixation of the spine in that position. This procedure may be carried out under either local or general anesthesia, but a general anesthetic gives better relaxation and thereby facilitates adequate reduction. The method of choice, considering its efficiency and the ease with which it is accomplished with a minimum of assistance, is as follows: Two tables are placed parallel, a short distance apart. Being careful to maintain extension, the patient is placed on his back on one of the tables and given a general anesthetic. When fully anesthetized, care is again taken to maintain extension as the patient is turned face downwards and across the tables so that the upper third of the chest rests on one of the tables and the upper third of the thighs on the edge of the other, the portion of the body between the upper third of the thighs and the upper third of the chest extending, without support, between the tables. An assistant then elevates the lower extremities to an angle of approximately forty-five degrees from the surface of the table. With the patient in this position enough downward force is applied at the site of the fracture to correct the deformity and reduce the fracture. In impacted compressions a great deal of force is necessary to secure reduction and it must be remembered that there is greater danger of applying too little force than too much. After reduction the position of hyperextension is maintained while a padded plaster jacket is applied. The plaster should extend from the middle of the sacrum to the upper dorsal region, and should be well molded around the iliac crests and along the spine. When the plaster has hardened sufficiently the patient is returned to bed and placed on his back with a pillow or folded blanket supporting the concavity of the plaster jacket. A large window in the epigastric region of the plaster adds to the comfort of the patient. It is necessary to maintain the position of hyperextension for from six to ten months, depending upon the extent of injury and x-ray evidence of repair. In uncomplicated cases the patient may become ambulatory within a week or ten days. The plaster jacket may be worn for three or four months and then replaced by a Taylor brace. For purposes of cleanliness and comfort, however, it is advisable to replace the plaster by the brace at the end of a month from the time of reduction. The prolonged immobilization causes atrophy and weakness in the muscles of the back, and

may result in some permanent disability even with good reduction and union, if daily exercises are not indulged in. Wearing the removable Taylor brace makes it possible to apply massage to the affected muscles as an adjunct to the exercises. Care should be taken to maintain hyperextension when the brace is removed for massage. It must be impressed upon the patient that his full coöperation is necessary in the use of routine daily exercises in order to avoid permanent disability. In measuring for the Taylor brace the patient should be placed face downwards in bed, the cast bivalved, and the posterior half removed. At this time the lower extremities and the upper part of the chest should be elevated sufficiently to maintain full hyperextension. If this is not done, the curve of the brace will not be correct, and in wearing the brace some of the hyperextension will be lost and may result in a greater or lesser degree of recompression of the vertebral body.

Cord Injury

In complete transverse lesions of the cord, as evidenced by complete motor and sensory paralysis, operative treatment can accomplish nothing because the cord cannot be repaired. In partial lesions of the cord operative intervention may or may not be worth while, usually not. The only hope of accomplishing anything by operation is the relief of pressure, which is seldom present. Usually the partial lesion is due to contusion or crushing of part of the cord or to hemorrhage into the cord. Nothing can be done for the crushing, and the hemorrhage may be at a point well removed from the site of fracture, and consequently cannot be located even with the cord exposed. Conservatism, then, should be the watchword in the treatment of cases complicated by cord injury.

Time does not permit detailed consideration of all the complications following injury to the cord. Briefly, however, it is very important to guard against infection of the bladder, maintain adequate elimination from the bowel, and prevent pressure sores. These precautions, of course, demand careful observation and constant skilled nursing care.

Because of support afforded by the chest wall, fractures in the thoracic region, except in the eleventh and twelfth vertebræ, are seldom so severely compressed as are those in the lumbar portion of the spine. Consequently, they are not so frequently accompanied by injury to the cord. It is also true that because of resistance to manipulation offered by the chest wall, reduction is not so readily accomplished in this portion of the spine. Because of this the best method of treatment of compression fractures in the dorsal region, above the eleventh vertebra, is bed rest with hyperextension until reduction is secured. The bed should be one which can be angulated to whatever degree is necessary to maintain adequate hyperextension. When lateral x-ray studies show satisfactory position, either a plaster jacket or a Taylor brace may be applied and the treatment continued as for similar fractures in the lumbar and lumbo-dorsal regions.

In the cervical region, reduction may be accomplished by either traction or manipulation. Traction is best applied in the following manner: Apply a sling or halter to the head. To this attach a weight of 10 or 15 pounds suspended over a pulley at the head of the bed with the head of the bed elevated for countertraction. After reduction is demonstrated by lateral x-ray studies, the traction apparatus may be replaced by a plaster jacket which immobilizes the head and neck. This may be worn until union is secured or it may be replaced by a rigid leather jacket with immobilizing collar, which is probably more comfortable. Some years ago Dr. A. S. Taylor of New York developed a successful method of manipulation for cervical fractures. According to his method a sling or halter is applied to the head and the ends of a rope are attached to the sides of the sling, the rope being long enough to pass around the waist of the surgeon. As the head is steadied and the position controlled by the hands, traction is applied by backing against the rope. In order to disengage the articular processes, traction is first applied in slight flexion until the neck is felt to elongate. The head is then dropped backwards until the spine is in extension. Reduction is then checked by x-ray and an immobilizing plaster jacket applied.

Prognosis

Although fractures of the spine have serious possibilities, when recognized early and adequately treated, the outlook is favorable for complete restoration of function in the uncomplicated cases. In cases in which the cord is damaged, the prognosis depends largely upon the location and extent of injury and upon the competency of the surgical and nursing care given.

INTERTROCHANTERIC FRACTURES

MYRON O. HENRY, M.D.

Minneapolis, Minnesota

IN the early nineteen-twenties, as x-ray technique improved, surgeons began to realize that the results of fractures of the hip were not good. The American Orthopædic Association collected some end results in 1929, and found that the mortality in intracapsular hip fractures was about 28 per cent, and that only 30 per cent of the survivors obtained bony union when treated by closed methods. Tremendous impetus was given to the study and treatment of fractures of the hip by Smith-Petersen who devised the three-flanged nail for treatment of intracapsular fractures of the hip. As surgeons learned to reduce fractures of the hip by the Leadbetter method, and became skillful in introducing the Smith-Petersen nail,[12] results improved, and mortality was reduced in intracapsular fractures.

Fig. 1. M. O. Henry's screw-bolt for transcervical and basal fractures; auxiliary pin to prevent rotation. (*a*) Anteroposterior and (*b*) lateral views.

For some time, the term "fractures of the hip" was loosely applied to all hip fractures, and internal fixation was also loosely used, and perhaps sometimes misused. As the characteristics of the various types of hip fractures became better known, methods of treatment became more standardized, and internal fixation became limited almost entirely to intracapsular fractures. The Smith-Petersen nail is now generally acknowledged as the best means of fixing intracapsular fractures. There remains only the choice of introduction under direct vision, or "blindly" from the lateral side. Under the stimulus of Smith-Petersen's leadership, other devices for internal fixation were devised, such as the author's screw-bolt[6,7,11] and Moore's multiple pins. While some of these were satisfactory, they were seldom better than, and often not as good as, the Smith-Petersen nail for fixation of *intracapsular* fractures.

Those fractures lateral to the capsule—the so-called "transcervical," or "basal," fractures—present a problem different from that of intracapsular fractures. Here not only accurate reduction and firm immobilization must be secured, but also mild compression is desirable. This is the type of fracture in which the screw-bolt is the method of choice (Fig. 1 *a* and *b*).

Internal fixation in intracapsular, transcervical, and basal fractures has shortened the healing period; it has lowered the mortality, and raised the percentage of bony union. The patients are more comfortable, the hospitalization is shorter, and the expense is less. All of these factors have combined to widen the field of application of internal fixation in hip fractures.

Trochanteric fractures, heretofore, have often been dismissed with the mere statement that "they always heal." This is true, providing the patient survives. At present the mortality in trochanteric fractures is higher than in intracapsular fractures. According to Leydig and Brooks,[9] the mortality in a series of over 600 intertrochanteric fractures varied from 25 to 39 per cent. This may be due, in part, to the greater age of the patient—seventy is the average[6]—but it is due also to the prolonged stay in bed, for none of these fractures is solidly united in less than sixteen weeks. Treatment of trochanteric fractures is sometimes varied according to the type of fracture. Bohler[7] recommended pin traction for ten to fourteen weeks in nearly all types. This requires bed rest for about ten weeks, and often ends in coxa vara deformity and shortening. Key and Conwell[8] advised nails or pins in basal fractures and also in intertrochanteric frac-

Read at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 17, 1943.

tures in which the lateral femoral cortex is intact.

Comminution of the trochanteric region has been the deterrant to internal fixation methods in these fractures. Fixed skeletal traction in plaster is sometimes used successfully, but this method also requires a long period of bed rest. Trochanteric fractures without too much comminution of the femoral cortex can be held by the screw-bolt, or by the screw-bolt and an auxiliary pin. Moore pins[10] may be introduced from various angles and, while lacking the factor of compression inherent in the screw-bolt, they can be employed either in basal fractures (especially if slightly impacted), or in comminuted fractures, to peg on fragments (Fig. 2 *a* and *b*). Sometimes the extent of comminution is not revealed by the x-ray, and the surgeon who plans to nail an intertrochanteric fracture may find, to his chagrin, that he has only loose fragments through which to drive his nail. To meet this contingency, Lawson Thornton has devised a plate which can be screwed onto the femoral shaft lower down and attached to a Smith-Petersen nail. The flanged nail is hard to withdraw from the neck in the face of comminution of the lateral cortex. While pins are easier to introduce and withdraw, they do not hold in lateral fractures with comminution where there is only a thin shell of cortex.

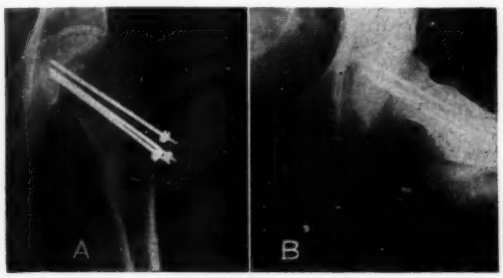

Fig. 2. Austin Moore pins in transcervical fracture. *(a)* Anteroposterior and *(b)* lateral views.

Roger Anderson's method[1] of multiple pins with fixation clamps externally, meets many of the above objections. It requires more skill for application and is prone to infection around the pins. The expensive "Frac-Sure Kit" is needed for its application.

Blount,[3] of Milwaukee, has perfected a blade-plate which bids fair to overcome all the above objections. Originally devised to fix Schanz osteotomies, like the Neufeld and Austin Moore plates, the Blount blade-plate lends itself admirably to fixation of all types of intertrochanteric fractures lateral to the basal fracture (Fig. 3). It can be employed regardless of degree of comminution, even in subtrochanteric fractures.[4]

Fig. 3. Comminuted intertrochanteric fracture. Blade-plate fixation, Blount's case.

Fig. 4. Comminuted intertrochanteric fracture. *(a)* Before and *(b)* after blade-plate fixation.

The fracture is reduced by gentle traction, with abduction and internal rotation if indicated. While held by an assistant in this position, a long lateral incision is made downward from the trochanter to expose the upper portion of the femur. If there is much comminution of the lateral side of the trochanter, a pin may be introduced to fix the fragments of the head and neck either permanently, as in Blount's case above, or temporarily. A nick chiseled in the cortex of the femur allows the blade to be driven into the neck (Fig. 4 *a* and *b*). The angulation of the blade-plate should be determined accurately from a

study of an x-ray of the sound side. It is usually an angle of about 140 degrees, but the angle of the blade-plate can be changed at the operating table with small sterile wrenches. Lateral x-rays are necessary at this point before driving the

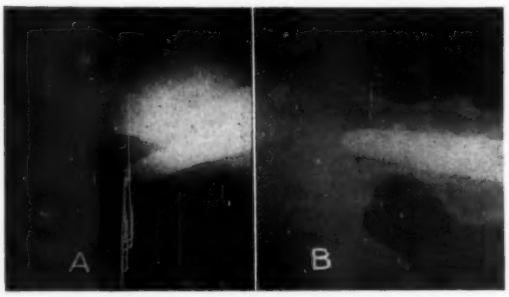

Fig. 5. (*a*) Lateral of Figure 4 *b*. Blade-plate did not penetrate neck. (*b*) Lateral of same case after reinsertion.

blade into the neck. One might assume, having seen the neck of the femur, that the blade-plate can be driven centrally into the neck with care. If the angle of the fracture is open posteriorly, the entrance of the blade into the proximal fragment of the neck may only open the gap wider, and the blade will not penetrate the neck (Fig. 5 *a*). After driving the blade home into the fragment of the head and neck, the plate is clamped to the shaft with a Lambotte clamp and check-up x-rays are taken (Fig. 5 *b*). Then screw-holes are drilled through the shaft of the femur, and the plate is fixed firmly to the shaft with four or five screws which bite through the medial cortex of the bone.

No external fixation is required with this device. The patient is more comfortable and has less pain than with any other method. He may sit up in bed, turn, and be up in a wheel chair, although weight-bearing is not permitted until x-rays indicate bony union. While only a small series of cases has been done by this method, it seems to solve many of the problems of intertrochanteric fractures. If the patient is a fair risk for an operation requiring about an hour, this method of internal fixation seems to be the procedure of choice regardless of the degree of comminution.

Summary

1. The Smith-Petersen nail is probably the best method of treating *intracapsular* fractures of the hip.

2. Nails and pins may be satisfactory in *transcervical* fractures but the screw-bolt is superior.

3. The Blount blade-plate is the method of choice in all types of true *trochanteric* fractures.

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UNUNITED FRACTURES

MELVIN S. HENDERSON, M.D.

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UNUNITED fractures may be divided into two groups: those delayed in uniting and those which are in a fixed state of nonunion. In fractures delayed in uniting, there is evidence of formation of new bone and an attempt at repair is still in progress, while in those in a fixed state of nonunion there is no indication of any attempt at bony repair—nature has been defeated and has given up. No arbitrary time limit can be set to designate into which group any given fracture will fall. Union may be in a delayed condition many months after the injury and a fracture may be in a state of nonunion as early as three months following the accident. In either group

From the Section on Orthopedic Surgery, Mayo Clinic, Rochester, Minnesota. Read at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 17, 1943.

there may be considerable malposition of the fragments, which definitely complicates the treatment. The most common sites of ununited fractures are the lower third of the tibia, the lower third of the humerus and the neck of the femur.

Etiology

Etiologic factors in ununited fractures are numerous but may be placed under two headings: general and local. In the former, some constitutional disturbance may be a factor. This may be seen in the rare cases of osteogenesis imperfecta in which multiple fractures occur and, occasionally, in certain generalized disorders such as von Recklinghausen's multiple cystic degeneration of bones. In a very few, tumors of the parathyroid are found. Such factors are rare. Patients who have ununited fractures, in a state either of delayed union or of nonunion, are usually robust, healthy and in the active period of life. Syphilis rarely, if ever, is a factor. Even congenital pseudo-arthroses of the tibia are probably due to some local abnormality.

Many of the ununited fractures follow severe contusing injury in which the fracture frequently is comminuted and the muscles, tendons, nerves and blood vessels are traumatized as when a leg is crushed, for example, by being run over by an automobile, or when a patient's arm is caught in a belt or wheel and twisted. The insult to all tissues is great, leaving them below par so that the physiologic attempt to establish repair is slow and tedious. Often, in such cases, hematomas are formed and swelling follows; the damaged muscles, tendons, and so forth become necrotic and slough. This broken-down mass of muscle and blood clot gradually liquefies and is acid in character. The phosphatase enzyme in the blood (which has to do with the precipitation of phosphoric esters from the blood) works best in an alkaline medium and its action is inhibited quite definitely in the face of this mass of broken-down tissue and debris—acid in character. This is an argument in favor of early evacuation of a collection of this kind, even if the fracture is not compound. Many fractures of the type just described are compound and then infection is too often a further complication.

Another cause of delay in union of fractures is inadequate reduction of the fragments. One cannot always obtain perfect reposition of the fragments, but at least a third of the diameter of the bone ends should be in contact. If the fracture is near a joint it is essential that there should be no angulation and that the line of weight-bearing be nearly normal. The interposition of muscle between the fragments (particularly in the shaft of the femur and humerus) may be of such amount that the callus thrown out by the bone ends cannot amalgamate across this tissue. If one has reason to believe there is muscle between the bone ends, there should be no hesitation about opening down on the fracture to pull the muscle from between the fragments.

Another deterrent factor to the formation of union is inadequate retention of the fragments. After the fracture is reduced, one must bear in mind that there is a constant pull of the muscles and unless the fragments are held in normal alignment, angulation and even marked displacement of the bone ends may occur if adequate splintage is not provided. Fractures should be held quiet and protected.

Another etiologic factor, which has come to our attention more recently, is fixed overtraction. It has been advocated that fractures be reduced by traction and held with pins placed through the fragments and that the pins be secured to a special outside plate or held imbedded in the plaster-of-Paris cast. No argument can be raised against the mechanical principles involved but it must be kept constantly in mind that in practically every fracture absorption occurs at the bone ends and if the fixation is absolute it will not permit the small amount of shortening necessary to keep the bone ends in contact. As a result, they will remain slightly separated and bone does not bridge a gap readily even though the gap is very small. This is a cause of nonunion which is becoming more prevalent as the foregoing method of treatment becomes more widespread. Many excellent methods for the treatment of fractures are sound from a mechanical viewpoint but one must bear in mind constantly that one is dealing with living tissue which is astonishingly capable of repair, even under certain unfavorable conditions produced by natural though faulty attempts at repair, but when one introduces man-made barriers, such as the overtraction mentioned, nature does not cope with them so readily.

Too early function may so strain the union that it becomes weakened and may never become solid, particularly in fractures of the lower extremities. This may occur in fractures of the tibia and fibula; the fibula may unite solidly but

the tibia may not and the former acts as a pivot around which the fragments of the tibia swing.

Prophylaxis is the best method of handling almost any situation, and so it is in the treatment of fractures. If the surgeon treating fractures will remember the three "R's"—reduction, retention and restoration—he will have very few fractures which fail to unite. Reduction must be complete, and after reduction has been accomplished, the fragments must be retained in correct alignment until healing occurs. The patient must be observed carefully during the period when function is being restored to be certain too much strain is not thrown on the union. Before weight-bearing is permitted in cases of fracture of the lower extremity, one should see in the roentgenograms bony trabeculations crossing the line of fracture. There is no definite timetable that can be applied to determine when a fracture is united solidly.

Fig. 1 *(Left)*. Case 1. Typical nonunion of tibia and fibula; note absence of any attempt at repair. Man aged twenty-four years.
Fig. 2 *(Right)*. Case 1. Union of tibia by aid of bone graft held with beef bone screws; fibula disregarded.

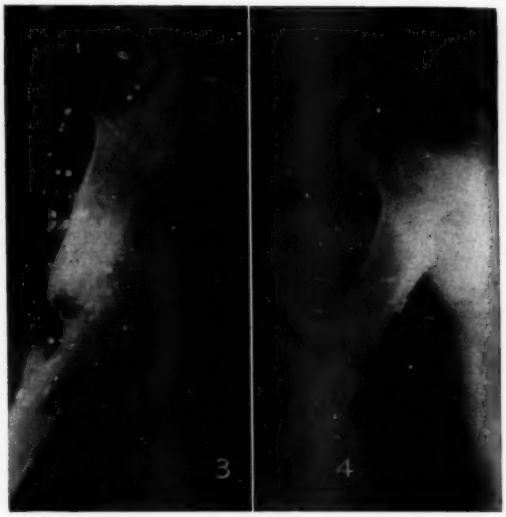

Fig. 3 *(Left)*. Case 2. Nonunion of upper third of humerus; old compound shotgun injury. Boy aged sixteen years.
Fig. 4 *(Right)*. Case 2. Seventeen years after bone grafting operation; firm union; full function.

Selection of Cases for Surgical Treatment

The problem of determining when to abandon conservative measures and resort to surgical treatment of fractures is not a simple one and there are no hard and fast rules. However, there are certain conditions which should exist at the site of fracture before surgical treatment is undertaken. One must be certain the bone forming activities are totally quiescent or are so retarded that too much time will be lost if operation is not undertaken. It may be that union would occur after many months in a given case, but in most instances the patient would prefer an operation to secure union in a few months rather than to be incapacitated for an indefinite period. Delayed union may drift into nonunion after many months of watchful waiting.

Many ununited fractures are compound and in such cases it is extremely important that all local signs of infection have subsided before any surgical treatment is undertaken, unless it be of a type necessary to clean up the infection, remove sequestra, and so forth. If there is any doubt about this, a practical test is to submit the extremity to physical therapeutic measures such as heat, massage and active and passive movement. If the previously infected region becomes red, sore and tender, one must be very cautious about intervention, and operation should be deferred until these signs are absent.

Sulfonamide Compounds

The sulfonamide compounds have been of great value in the surgical treatment of fractures previously infected. Before operation the drug

should be given by mouth for three to four days until the proper level in the blood stream is attained,* and at the time of operation the sterile sulfonamide compound should be placed in all layers of the wound. In our experience it has never interfered with bony repair. Care must be taken to see that the drug, particularly sulfathiazole, is not used in the wound in such large quantities that it becomes caked. If this happens, it may act as a foreign body. The drug should be sprayed or spread on in a thin layer. I am confident that by using these drugs we have been able to operate successfully in the type of case wherein, before the use of the sulfonamide compounds, surgery had been usually doomed to failure in a large percentage because of a flare-up of the old infection.

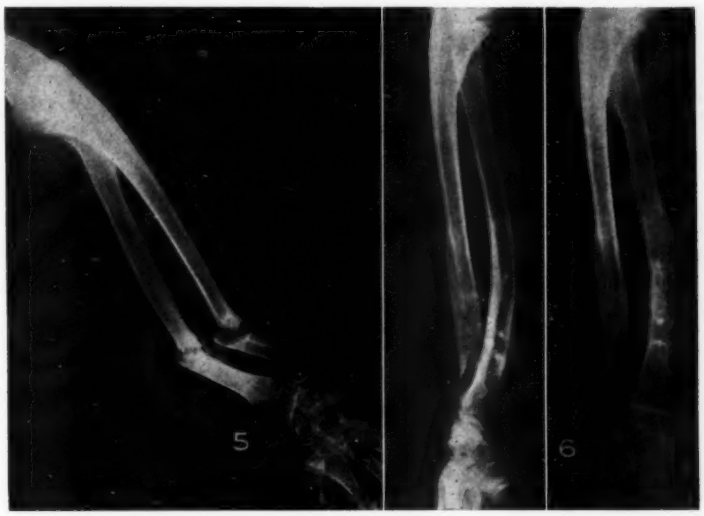

Fig. 5 *(Left)*. Case 3. Nonunion of radius and ulna, six months' duration; woman aged sixty-one years.
Fig. 6 *(Right)*. Case 3. Union in both bones fifteen months after operation. Note beef bone screws almost absorbed.

Massive On-lay Bone Graft

The most useful type of surgical treatment at our command for fractures, either delayed in uniting or in a fixed state of nonunion, is the bone grafting operation. For many years we have used what we call the massive graft, referred to by the late Willis Campbell as the on-lay graft to distinguish it from the inlay graft of Albee. This graft is large and strong and has abundant contact with the fragments; it might well be called the massive on-lay graft. It acts not only in a physiologic rôle but also in the rôle of providing fixation. The bone graft should be autogenous and should be held firmly to the fragments by some means after they have been prepared thoroughly, the fibrous material between the bone ends has been removed, the medullary cavity opened in each and firm contact of the ends of the fragments to each other assured (Figs. 1, 2, 3, 4, 5 and 6). In former years, we used beef bone screws to hold the graft to the fragments, but in more recent years we have employed vitallium screws. The latter are well tolerated by bone and can be inserted more easily than beef bone screws. In the event of infection in cases in which beef bone screws have been used, the latter are very troublesome because, becoming partially absorbed, they become fragmented and are difficult to remove. This is particularly true when the screws penetrate both cortices of the fragment. The vitallium screws are nonabsorbable and can be removed readily if infection occurs.

Occasionally the fragments of bone are so osteoporotic that screws will not hold. In that event it may be necessary to place Parham bands around both fragments and the graft (Figs. 7

*Sulfanilamide or sulfathiazole may be used; the latter is probably preferable. In this type of case a blood level of 8 mg. per 100 c.c. is the goal for the average person. Seventy-five grains (5 gm.) per day is usually sufficient.

and 8). Multiple chips of bone (spongy bone if it can be obtained) may be packed about the line of fracture. However, if a wound should become infected, these small fragments are troublesome; therefore, they should be used in moderation and only where they will be most effective, namely, at the site of the fracture. Adequate postoperative protection is best provided by a plaster-of-Paris cast.

Fig. 7 *(Left)*. Case 4. Nonunion, two years' duration, with fragile osteoporotic fragments. Woman aged forty-two years.
Fig. 8 *(Right)*. (Case 4). Union obtained by aid of bone graft held with Parham bands; eighteen months after operation. Bands removed later.

Conclusions

1. Ununited fractures fall in two groups: those in a state of delayed union and those in a fixed state of nonunion.

2. Etiologic factors are general and local. The former are rarely significant. Local causes are the important ones. They include severe contusing injuries (frequently compound), inadequate reduction of fragments, interposition of muscle between the bone ends, inadequate retention of fragments permitting slipping and overtraction caused by the use of pins and too early function.

3. Surgical treatment should be undertaken only when the fracture is in a state of nonunion or when union is delayed and unpredictably prolonged. Reparative work is contraindicated so long as there is any sepsis or inflammation at the site of fracture.

4. Sulfonamide compounds have been a definite aid in those cases in which the wound has healed at the time surgical intervention is considered although it had been infected previously. Before the introduction of the sulfonamide compounds flare-ups of the old infection recurred in a high percentage of these cases when operation was carried out, but if the sulfonamide compounds are given by mouth and inserted locally as each layer of the wound is closed, infectious flare-ups following operation will be much less common than if they are not used.

5. The use of the massive on-lay bone graft is the procedure of choice. The graft should be autogenous, long and thick. The fragments must be prepared carefully by excision of the mass of fibrous tissue between them, by freshening the bone ends (opening the medullary cavity in each), fitting them so they have firm contact with each other, and by carefully freshening areas of the cortices against which the bone graft is to be placed. The graft must be held firmly against the cortices. Of recent years we have used vitallium screws to accomplish this but occasionally we have resorted to Parham bands when the fragments were too osteoporotic to furnish a good foundation for the screws.

6. Adequate postoperative external splinting must be provided in all cases. Plaster-of-Paris is our choice.

LACK OF ANATOMICAL CHART FAILS TO STUMP INSTRUCTOR

A lieutenant instructor was detailed to give lessons in first aid in case of dangerous bleeding from severed arteries, relates the *Infantry Journal* (July). There wasn't any anatomical chart showing the location of the blood vessels, such as every well-equipped schoolroom can display before its pupils.

The young officer was nothing if not ingenious. Singling out a long, lean soldier from his class, he ordered him to strip. Then with a piece of lipstick he traced the human arterial system on the private's goose-pimpled hide. With such a large-as-life-and-twice-as-natural chart, the lesson was a great success.

Now lipstick is standard equipment in that outfit.—*Science News Letter*, July 24, 1943.

FRACTURES OF LOWER END OF RADIUS AND ULNA

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BECAUSE of the frequent question, "How do you treat your Colles' fractures?" I have the temerity to present, in an academic way, the consideration of fractures of either radius or ulna at the lower end. This is perhaps the most common of the fractures we are called upon to treat, except those of the ribs or clavicle. Because of difference in type and severity, there is a classification for adults and one for children, primarily because of the difference in reaction to stress and strain in young bones as compared with those of the adult or aged, because the epiphysis is rarely united with the shaft at the lower end of the radius before the age of eighteen.

The different types seen in adults and children may be classified as follows:

In Adults

1. Styloid fractures
2. Barton's fracture—anterior or posterior fracture of the articular lip of the radius
3. Colles' fracture—supra-styloid fracture or its reverse, the Smith fracture.
4. Fracture of one or both bones—linear, simple, comminuted
5. Compound fractures in any area of one or both bones

In Children

1. Epiphyseal separation with or without comminution comparable to Colles', Styloid and Barton's in adults.
2. Green stick fracture of one or both bones
3. Complete fracture of one or both bones
4. Linear or so-called subperiosteal fractures of one or both bones
5. Compound fractures associated with any of these conditions

The etiology of the fractures under discussion is usually that of direct violence, blows or falls upon the forearm, such as shutting a door on a forearm, catching the forearm in a belt, or the hand in a revolving wheel. Indirect violence such as falls upon the hand, backfire of an automobile during the act of cranking, muscular action as in shoveling, or sudden effort to prevent falling, may result in a fracture.

Of all the fractures of the radius at the lower end, Colles' fracture is most common. It was described by Abraham Colles in 1814 as a fracture of about one inch of the wrist joint, involving the whole thickness of the lower shaft of the bone with backward displacement. Since the advent of x-ray many fractures of this type much nearer the joint are still known as Colles' fracture. Because of great disability to the hand and wrist in poorly reduced fractures, great care must be taken to restore: (1) the length of the radius; (2) the integrity of the radio-ulnar joint; and (3) the alignment of the radio-carpal joint.

1. The length of the radius can only be maintained by complete absolute breaking up of all impaction, because impacted bone dies and is absorbed.

2. The integrity of the radial ulnar joint is aided best by placing the radius and ulna in close apposition, that is, in full pronation.

3. Alignment of the radio-carpal joint depends upon complete elimination of all impaction and maintaining a moderate flexion and ulnar deviation of the wrist joint.

Impaction is the rule in Colles' fractures. Even though it is minimal, the amount of absorption may be considerable, and complete breaking and loosening of the fragments by traction and manipulation, regardless of the force required, is imperative.

Cotton, in his "Treatment of Fractures," contends the successful management of a Colles' fracture depends upon the maintaining of the integrity of the radial ulnar joint and would classify this fracture in two classes:

1. Fracture with the discus articularis intact
2. Fracture with the loss of the integrity of the radio-ulnar joint due to:
   (a) Rupture of the ligament itself
   (b) Avulsion of the ulnar styloid at its base
   (c) Severe comminution of the lower end of the radius with the ligament attached to a loose minor medial fragment

The normal relation of the radio-carpal joint is important in that the lower end of the radius should be in such position that flexion and extension of the wrist joint will be possible.

A method of procedure we have used for years with satisfaction has, as its object, reduction of

Read at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 17, 1943.

impaction complete, regardless of force required, maintaining the closest possible contact of the radius and ulna. The proper alignment of the radial carpal joint is accomplished by the following procedure:

General anesthesia is used except when contraindicated.

The Jones manipulation is used. This consists of the handshake manipulation under strong traction, loosening the fragments completely. Then, with traction maintained, further moulding of fragments between thumb and fingers is accomplished. The hand is then held in full pronation, moderate but not forced flexion, with deviation of the hand to the ulnar side.

Deviation of the hand to the ulnar side is a comfortable position, and if the ulna has been properly restored to its dorsal position with flexion this maneuver wedges the lunate bone partly beneath the distal ulna preventing forward luxation. This gives stability to the ulnar side and a continuation of this position causes a pull on the carpal ligaments and radial fragments, lifting them into place, using the wedged ulna as a fulcrum. Continuance of ulnar deviation further serves to snug the radius to the ulna and permit reparative processes to reconstruct the ligamentary attachments. Traction is maintained by pull on the fingers and thumb by one, or better, two assistants, and the use of wire or fiber glove fingers makes strong traction easier.

One or two layers of sheet wadding or stockinette are applied and then a circular plaster-of-Paris cast from the base of the fingers to the elbow joint. The hand and fingers are covered to their tips with an Ace elastic bandage for the first twenty-four hours. A sling is used for the first few days and the patient is instructed to move his fingers. The plaster cast is carefully moulded while traction is maintained until the plaster is firm and set, not forgetting slight flexion and ulnar deviation. Check radiograms are taken to be sure of position directly after the application of the plaster-of-Paris cast. Personally, I do not bivalve the original cast but this can be done and the cast held in position by an elastic bandage, and it is advisable unless the cast is carefully moulded.

The position of the fragments is checked every ten days until the cast is removed in twenty-one to twenty-eight days after application. Upon removal of the plaster cast, a half cast or splint of heavy felt or metal is applied for a week or ten days with daily gentle manipulation of the wrist and fingers. An elastic bandage as a wrist support is then used until the function of the fingers and wrist has returned, which is usually about two months. It must be remembered that swollen fingers require active exercise and the retaining apparatus should in no way prevent such motion. Supportive elastic cloth bandage is valuable for the first twelve to twenty-four hours. The sling is discarded after a few days. Arm and shoulder movement is maintained by the exercise of dressing. Slight work can be carried out within a few days of the accident.

It is my belief that the procedure carried out in suprastyloid fractures (Colles') is proper for styloid fracture of the radius with quite extreme ulnar deviation and flexion to maintain reduction and position.

Styloid fractures of the ulna may occur singly or in connection with any of the mentioned fractures of the radius, and unless a large base is fractured, non-union is quite the rule, with usually no serious consequence if the discus articularis (triangular ligament) becomes stable.

Barton's fractures are essentially fractures into the joint with either lip of the radius broken off, the fragment being carried backward. The treatment is that of Colles' except that great force can be applied to push the fragment into position because the main portion of the lower end of the radius remains intact and over-correction is almost impossible.

Separation of the lower radial epiphysis in children is comparable to the Colles' and Barton's fractures in the adult. The lower radial epiphysis is usually displaced backward and outward and most frequently carries with it a fragment of the metaphysis. Through pull on the triangular and internal ligament of the wrist joint, the ulnar epiphysis may be separated and the styloid or lower end of the ulna fractured. The same manipulation is used as in a Colles' fracture, but in children when the fragments are reduced, they usually slip into near perfect position and are rather easily retained. The time of retention is only three weeks, and a splint, half cast, or circular cast will suffice. It must be remembered in epiphyseal separation that a premature fusion of the radial epiphysis takes place with resulting overgrowth of the ulna and dislocation of the radial ulnar joint.

Fracture of both bones of the forearm near the wrist joint may occur in adults and children alike and absolute reduction may present a difficult problem. Often when one bone is in satisfactory position, the other will assume a most unpromising position. In children with one shaft in satisfactory position and the other only partially reduced so that only the edge of the fragments touch or are not more than one-fourth on, the end result will be satisfactory provided proper alignment is kept up until union takes place. In adults this is not true as a large callus may prevent rotation, and the chance of cross union is more likely. This type of fracture is reduced by:

1. Manipulation and traction. Strong manipulation and traction will usually suffice in children and in most adults.

2. Traction according to Magnuson's method. Traction is made upon the hand and lower forearm, based upon principle that traction and counter traction will overcome muscle pull on the fragments and that they will fall into normal position. I believe this will be found to be true in children, but in adults this method is not always satisfactory.

3. Open operation or by direct leverage of fragments according to the Thompson method. Open operation with application of a fixing apparatus, such as a plate or on-lay bone graft on one or both bones is rarely necessary. Reduction by direct leverage by means of a curved small dental chisel as advocated by Thompson may obviate a major operation.

The method of retaining this type of fracture is quite different than in a Colles' fracture. Pronation should be eliminated, and the forearm is held in full supination to separate as far as possible the radius and ulna and the two sites of fracture. The retentive dressing must include the lower portion of the humerus so that pronation and supination cannot take place. A circular cast may be used, but the so-called sugar tong type of dressing is ideal.

Green stick and linear fractures of one or both bones are seen in children or in the early teen age and usually present no great difficulty in treatment. Green stick fractures, if they are of any extent, should be completely straightened. Most frequently it is necessary to complete the fracture to gain satisfactory reduction, but upon reduction only simple apparatus is necessary to retain position. Linear or subperiosteal fractures are usually seen without any great deformity and can be retained in the original good position by simple apparatus. Green stick and linear fractures usually heal slowly. They frequently require a much longer time for solid union to take place and therefore require splinting until definite evidence is seen in the radiogram of sufficient callus formation to warrant bony strength and resistance.

Compound fracture at the lower end of the radius and ulna is rarely seen except when the lower forearm has been caught in moving machinery, as between a belt and wheel or in definite crushing injuries. Usually injury to soft parts as well as to bone is extensive. In each and every instance complications may vary to such an extent that in this short paper it would be impossible to suggest any possible method of treatment. However, since the advent of the sulfa drugs, many cases can be best treated by the Orr method, often with primary healing of the wounds.

PATHOLOGIC CHANGES IN THE AURICLES IN AURICULAR FIBRILLATION ASSOCIATED WTH HYPERTENSION

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EVER since the early years of this century, when it was recognized that absolute irregularity of the pulse is due to auricular fibrillation, sporadic attempts have been made to prove that definite pathologic changes in the auricles are the responsible factor. Most of these studies were confined largely to microscopic examination of the conduction system and of the myocardium, with occasional mention of the fact that the auricles were dilated. With the elaboration of

Abridgment of thesis submitted by Dr. Stover to the Faculty of the Graduate School of the University of Minnesota in partial fulfillment of the requirements for the degree of M.S. in Medicine.

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the theory of "circus contraction" by Lewis in 1912, there came a realization that the condition is probably functional and that no definite pathologic change is necessary. Yater's exhaustive study of the conduction system in cases of auricular fibrillation further confirmed this belief.

However, a number of attempts have been made to correlate changes in the auricular wall with the presence of auricular fibrillation. The groups of hearts examined have nearly always included cases of auricular fibrillation associated with many different types of heart disease. It was thought to be of interest, therefore, to study the auricles of a group of cases of auricular fibrillation in which, so far as could be determined, the condition was associated only with hypertension, in order to determine the frequency of dilatation of the auricles, changes of the thickness of the auricular wall and the presence of any myocardial lesions.

Review of the Literature

The first recorded study of the pathologic changes in auricular fibrillation was made by Schönberg in 1909. He examined eleven hearts and found lymphocytic infiltration and fibrosis in the wall of the vena cava, the sulcus and the superior wall of the right auricle. He felt that there was a lesion in Wenckebach's bundle which acted similarly to a Stannius first ligature, and thought that this accounted for the arrhythmia. Similar findings were reported in 1910 by Hedinger and in 1909 by Koch. In the next four years, observations on small numbers of cases were made by Falconer and Dean[7,8] Price and MacKenzie, Cohn and Lewis, Draper, Berger, and Sutherland and Coombs. The majority of these hearts had dilated auricles as well as fibrosis and round cell infiltration of the auricular wall, particularly in the region of the sinus node.

In 1918, Frey reported the roentgenographic findings in ninety-nine cases of fibrillation, of which 72 per cent showed definite auricular enlargement. Brachman, in 1921, discussed 380 cases of auricular fibrillation of all types, an unstated number of which had come to necropsy. He stated that there was almost always definite myocardial change, usually fibrosis in the wall of the auricles. In 1922, Fløystrup reported the necropsy findings in twenty-six cases in twenty-three of which the auricles were dilated. In thirteen of these twenty-three there were valvular lesions. Fibrosis, round cell infiltration or fatty change was found in the auricular wall in 84.6 per cent of the cases. Mönckeberg, in 1924, in an extensive review of the literature, concluded that lesions in the sinus node or the myocardium were not necessary for the production of fibrillation.

In 1925, Frothingham found definite microscopic changes in nine out of eleven hearts which had fibrillated, and in four out of fifteen controls. These changes varied from mild differences in the staining reaction to actual necrosis of part or all of the fiber. He expressed the belief that there probably was some relation between auricular fibrillation and this degenerative lesion in the auricular muscle. Coombs and Herapath, as quoted by Cowan, found gross damage to the auricular muscle in all of the eighteen cases of auricular fibrillation which they examined.

Yater, in 1929, studied twenty-six hearts from cases of auricular fibrillation. In the six hearts in which hypertension was regarded as the cause of the arrhythmia there were changes which included swelling of the muscle fibers, loss of cross striations, slight thickening of the arterioles, and in one case, thickening of the endocardium of the left auricle. He stated that "the microscopic study of the hearts which had been the seat of these arrhythmias was strikingly negative as regards any distinctive lesion, or, in fact, as regards any changes which could be assigned as the cause of the arrhythmia in any individual case."

In a roentgenographic and postmortem study of ninety-six cases in 1934, Sussman and Woodruff found that auricular fibrillation of many years' duration may occur without auricular enlargement, and expressed the belief that the size of the left auricle was not directly related to the presence of fibrillation. In 1941, Hutcheson studied two cases of mitral stenosis with auricular fibrillation and twenty-seven controls. He found a great increase of the smooth muscle of the endocardium of the left auricle, in one instance an increase of sixty times, with a moderate decrease of the thickness of the auricular myocardium.

Methods

It was felt that there was no practicable method for the gross measurement of auricles which had been fixed in formalin, and it was therefore neces-

sary to determine the presence of dilatation by simple estimate. Each heart was examined on at least three separate occasions, and any auricle in which the enlargement could be considered only as slight was not considered to be dilated.

Two blocks of tissue were then cut from the left auricle and one block was cut from the right. One of these was taken from the left auricle at a point 1 cm. above the posterior leaflet of the mitral valve and one near the base of the left auricular appendage. The tissue from the right auricle was taken from its right wall, at the approximate center of the region occupied by the pectinate muscles. The tissue was embedded in paraffin and stained with hematoxylin and eosin, after which each section was examined microscopically. Each section was then placed in a microprojector, and the image, magnified fifty times, was projected onto graph paper, the heavy lines of which were 1 inch (2.54 cm.) apart. The thickness of the auricular myocardium and endocardium was then measured at each of these lines. Because of its extreme thinness, it was found to be impossible to measure the endocardium of the right auricle by this method.

The total number of measurements taken was 7,858. The minimal number of measurements of any component of the wall was eight and the maximal number thirty-one, with an average of twenty-one. The average measurement of each component was then determined, and divided by fifty to reduce it to the actual correct thickness, measured in millimeters.

Analysis of Cases

All cases in which there was any evidence of rheumatic fever at necropsy, or any previous history of the disease, were excluded from the study, as were also all cases in which the thyroid gland was abnormal in any respect. While it was impossible to exclude cases in which there was coronary sclerosis, there was definite associated hypertension in all instances. All instances of patent foramen ovale were omitted.

The upper limits of normal blood pressure were considered to be 145 mm. of mercury systolic and 90 diastolic. In four of the sixty-seven cases included in the groups in which there was hypertension the records did not show blood pressure readings greater than this level. However, all of these cases showed significant cardiac hypertrophy which could not be attributed to any other cause and in three of these there was a history of previous hypertension. In the group of cases in which there was auricular fibrillation, the presence of the arrhythmia was verified electrocardiographically. In the groups of cases in which there was hypertension but no fibrillation, electrocardiograms when taken showed no further evidence of an auricular conduction disturbance than an occasional auricular premature contraction.

The total number of hearts examined was ninety-two. These were divided into four groups. The first group contained twenty-one hearts from patients who had had hypertension and auricular fibrillation. In this group the ages at death varied from forty-one years to seventy-nine years, with an average of 61.9. There were thirteen men and eight women. In thirteen of these cases the approximate duration of the fibrillation was known and in eight it was unknown. In four of these thirteen, the fibrillation had been present for less than one month, and in the remaining nine it had been present for more than one month. This group included cases in which fibrillation had been present for some time, and in one instance the condition had been intermittently present for sixteen years. For purposes of study, the eight cases in which the duration of the fibrillation was unknown were arbitrarily placed in the group in which fibrillation had been present for less than one month.

The second group consisted of twenty-five normal hearts, in which so far as could be determined there was no evidence of gross or microscopic pathologic change. None of these patients had any history of hypertension, and the heart weights were within normal limits. In no case was coronary sclerosis graded as more than 2, on the basis of 1 to 4. The ages of the patients in this group varied from seventeen to seventy years, with an average of 45.6. There were ten men and fifteen women in this group. No effort was made to have the age group of these hearts coincide with the pathologic groups because it was thought advisable to have hearts of all ages for purposes of measurement and histologic study.

The third group comprised twenty-five hearts from patients who had had hypertension, without auricular fibrillation, and without congestive failure. The ages in this group varied from

TABLE I. AVERAGE MEASUREMENTS OF THE THICKNESS OF THE VARIOUS COMPONENTS OF THE AURICULAR WALL, NUMBER OF CASES IN WHICH MICROSCOPIC LESIONS AND AURICULAR DILATATION OCCURRED AND HEART WEIGHT

	Right auricle, mm.	Left auricle, mm.					
	Myocardium	Average, myocardium	Average, endocardium	Total thickness	Microscopic lesions	Auricular dilatation	Heart weight, gm.
Auricular fibrillation (21 cases)	1.59	1.81	0.32	2.13	11	15	528
Fibrillation and congestive failure (6 cases)	1.96	1.86	0.28	2.14	3	4	561
Fibrillation, no congestive failure (15 cases)	1.44	1.80	0.34	2.12	7	9	515
Hypertension, no fibrillation or failure (25 cases)	1.49	2.24	0.40	2.64	12	7	468
Hypertension with failure, no fibrillation (21 cases)	1.68	2.19	0.35	2.55	16	12	607
Auricular dilatation (34 cases)	1.64	2.21	0.36	2.58	21	34	581
No auricular dilatation (46 cases)	1.62	2.03	0.36	2.38	23	0	545
Fibrillation: duration one month or less (12 cases)	1.55	1.93	0.36	2.27	6	7	524
"Prolonged" fibrillators (9 cases)	1.64	1.67	0.27	1.93	5	8	533
Normal hearts (25 cases)	1.21	1.19	0.38	1.59	0	0	299

twenty-five to seventy-six years, with an average of 57.4. Of these patients, seventeen were men and eight were women.

The fourth group was made up of the hearts of twenty-one patients who had had hypertension and resultant congestive heart failure but no history of auricular fibrillation. The ages varied from forty-three to seventy-seven years, with an average age of 59.5 years. There were fourteen men and seven women in this group.

Findings

In analyzing the frequency of auricular dilatation in the sixty-seven cases of hypertensive heart disease under study, important factors to be considered include the presence of auricular fibrillation, the presence of congestive heart failure and the heart weight.

In fifteen of the twenty-one cases of fibrillation, auricular dilatation was present (71.4 per cent). In two cases the right auricle alone was dilated and in two cases the left auricle alone. In eleven cases both auricles were dilated.

Congestive heart failure was present in a total of twenty-eight cases. In eighteen of these (64.3 per cent) there was auricular dilatation. Seven of these twenty-eight cases also had had auricular fibrillation, and in six of the seven cases (85.7 per cent) there was auricular dilatation. Of the twenty-one cases of congestive failure in which fibrillation had not occurred, twelve exhibited auricular dilatation (57.1 per cent). The right auricle alone was considered to be dilated in three of these, and in one case the left auricle only was enlarged. In eight cases, both auricles were enlarged.

An effort was also made to determine whether the auricular dilatation was more frequent in hearts which had undergone marked hypertrophy than in those which had not. Thirty-three of the hearts studied weighed 500 gm. or more. Of these, twenty-six (78.8 per cent) exhibited dilated auricles. Of the thirty-four hearts weighing less than 500 gm., only nine (26.5 per cent) showed auricular dilatation.

Six of the hearts which had fibrillated but not failed weighed more than 500 gm. Four of these (66.7 per cent) had definite auricular dilatation.

Fig. 1. A section from the wall of the right auricle in a case of auricular fibrillation of more than three years' duration, showing the typical myocardial degeneration and fibrosis (×60).

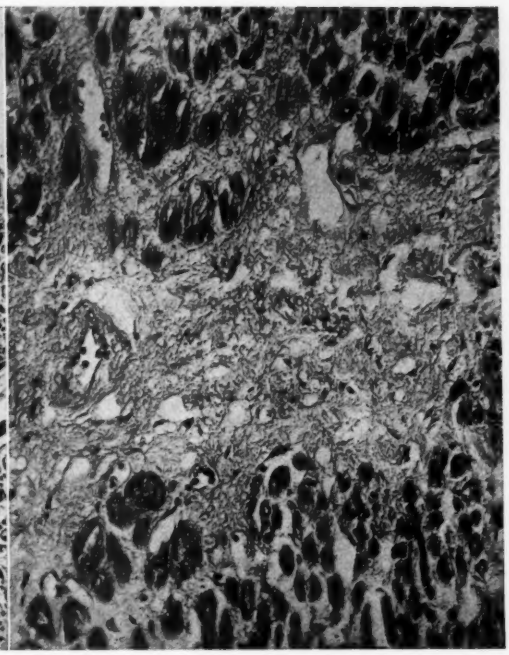

Fig. 2. A higher magnification of one of the fibrotic regions in Figure 1 (×225).

Of the eight fibrillating hearts without failure weighing less than 500 gm., five (62.5 per cent) also had auricular dilatation.

Of the twenty-five cases in which there was hypertension but no fibrillation or congestive failure, there was auricular dilatation in only seven (28 per cent). In three cases, the right auricle alone was dilated, in two the left alone, and in two cases both auricles were enlarged. Seven of these twenty-five hearts weighed more than 500 gm., and there were dilated auricles in four of these (57.1 per cent). Dilatation was present in only two of the eighteen hearts weighing less than 500 gm. (11.1 per cent).

Sixteen of the twenty-one hearts in which there had been congestive failure but no fibrillation weighed more than 500 gm. Twelve of these (75 per cent) had dilated auricles. There was no auricular dilatation in any of the five hearts in this group which weighed less than 500 gm.

The measurements of the thickness of the auricular wall in the various groups will be found in Table I. All measurements are expressed in millimeters. It will be noted that the difference of the mean thicknesses of the various components of the auricular wall in the different groups is in no case great. Small differences do exist, particularly in a comparison of the normal with the pathologic groups. Since the hearts in the latter groups weighed, on an average, from 150 to 300 gm. more than the average heart in the normal group, it would seem that these differences cannot be considered to be significant. The figures obtained in the pathologic groups showed surprisingly little variation, and, likewise, there was little difference between the average thicknesses in the group of auricular fibrillation, with and without dilatation. The duration of the fibrillation seemed to have no effect on the thickness of the various components of the auricular wall, as measured by this method.

There were definite histologic alterations of the auricular walls of a considerable number of the hearts examined, with the exception of the normal group, in which none were found. These lesions were similar to those described by Frothingham and by Yater, and consisted of degenerative changes in the myocardial fibers, varying from mild change with disruption or disappear-

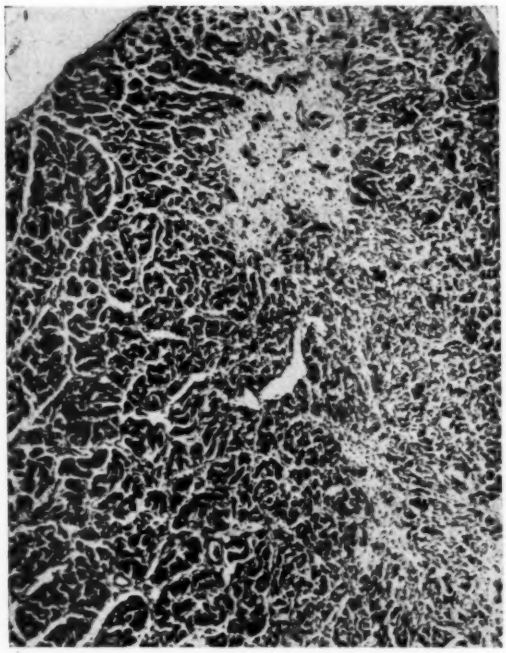

Fig. 3. A similar region of fibrosis in the right auricular wall in a case of hypertensive heart disease with congestive failure but without auricular fibrillation (×80).

ance of the cross striations to actual complete necrosis of part or all of the fiber. There was replacement of these damaged fibers by fine fibrous connective tissue. In some cases, there was also lymphocytic infiltration of moderate degree. These lesions of degeneration and fibrosis were most common in the region of the auricular wall immediately beneath the endocardium, a region which, theoretically, should have the richest blood supply (Figs. 1, 2 and 3). They were particularly common in the right auricle, in the tips of the pectinate muscles. These lesions were no more common in hearts in which there was severe coronary sclerosis than in those which exhibited minimal sclerosis of the coronary arteries. They occurred in the vicinity of blood vessels just as frequently as in regions where vessels were relatively few.

These lesions were present in all groups of the hearts from hypertensive patients. As will be seen from Table I, the lesions were present in eleven, or 52 per cent, of the hearts in which there had been auricular fibrillation. They occurred in nine of the fifteen hearts in the group with auricular fibrillation which had dilated auricles. They were present in about an equal proportion of the groups of auricular fibrillation with and without congestive heart failure.

These regions of degeneration also occurred in the auricles of twelve (48 per cent) of the group with hypertension but without congestive failure or auricular fibrillation. Seven of the hearts of this group had dilated auricles, and of these three, or 43 per cent, had microscopic changes.

Of the group in which there had been congestive heart failure but no auricular fibrillation, sixteen, or 76 per cent, contained microscopic lesions in the auricles. Twelve hearts from this group exhibited auricular dilatation, and nine of these (75 per cent) contained auricular lesions.

That the duration of the auricular fibrillation did not have any effect on the frequency of the lesions is shown from the fact that six of the twelve hearts which had fibrillated for one month or less contained lesions, whereas five of the nine hearts which had fibrillated for more than one month had regions of degeneration.

Summary and Conclusions

Auricular dilatation is slightly more common in cases of auricular fibrillation than in the other groups. It is also found frequently in hypertensive heart disease with congestive failure, but is relatively uncommon in cases of hypertensive heart disease in which there has been no history of auricular fibrillation or congestive failure. The heart weight had a definite bearing on the size of the auricles studied, and in all hearts weighing more than 500 gm. auricular dilatation was a very frequent finding. Dilatation of the auricles was uncommon in the hearts which weighed less than 500 gm., with the exception of those which had fibrillated. In this group, dilatation was almost as frequent as in the cases of auricular fibrillation which occurred in hearts weighing more than 500 gm.

Measurements of the auricular endocardium and myocardium, by the method described, failed to reveal any significant changes of the thickness of these two components of the auricular wall in the various types of hypertensive heart disease studied.

Degenerative lesions of the auricular myocardium are found frequently in cases of hypertensive heart disease, particularly in those groups in which there is auricular fibrillation or congestive heart failure.

There is nothing in this study to indicate that

the microscopic lesions described are in any way necessary to the development of auricular fibrillation or that they are the result of it.

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MANAGEMENT OF INDUSTRIAL INJURIES

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DOUBTLESS many of us have witnessed a tremendous change in the management of industrial injuries in the past quarter of a century. There has been a vast improvement in the relationship between the employer and employe. The heads of modern industrial plants recognize they are definitely responsible for the welfare of their employes. Labor has found strength in organization and now insists on a healthful environment in which to work, on medical treatment and on compensation for injuries sustained. Thus, in an effort to satisfy employes and prevent prolonged expensive litigation, many industries have established first aid stations with hospital facilities, have employed company physicians, nurses and welfare workers, and have covered their employes with group accident and health insurance. After a time, compensation laws were passed and industry was made legally responsible in cases of industrial injuries and certain occupational disease. The day of simply replacing a worker when accident or disease causes disability and forcing him to care for himself has passed. This custom has given way to a more humane attitude. In this metamorphosis of the employer-employe relationship, the medical profession has taken an important part, and a new specialty has developed. Today, the industrial physician is no longer looked on merely as a company doctor but is appreciated and his group of specialties is a learned one.

The private physician now finds his paper work increasing and much of his time taken up with detailed reports to insurance companies, compensation boards, attorneys and other agencies. The management of industrial injuries demands that he take a careful history of the circumstances of the accident and record the physical findings, the diagnosis and the treatment employed, and that he obtain a satisfactory result with a minimal loss of time. Will his records stand inspection when he is called upon to produce them?

In my experience at the Mayo Clinic during the past thirty years I have encountered an increasing number of patients who came to the clinic because of an injury or disease which they attributed to factors that permit compensation benefits. In some instances the patient may have made the rounds of local physicians and some of the patients may have been seen by physicians of nationally known institutions or have consulted famous specialists and may still have been dis-

From the Section on Orthopedic Surgery, Mayo Clinic, Rochester, Minnesota.

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satisfied with the diagnosis and opinion which have been given. Many of them seek a diagnosis and opinion that will permit them to collect compensation. The longer compensation is paid and the greater the amount received, the better satisfied the patient will be and the more cordial he will be to the physician. On the other hand, should the physician, after an honest and painstaking examination, express an adverse opinion and the patient fail to obtain financial benefits, another conclusion may be reached. Some dissatisfied patients who seek compensation vilify the doctor and refuse to compensate him for his conscientious work, and a common recourse is to threaten him with legal action. In rare instances, an angered patient has resorted to physical attack and even murder; two physicians of my acquaintance, who actually favored the petitioner's demands have been fatally shot by patients who thought that the physicians were responsible for their loss of compensation.

The relationship of the physician to the injured industrial worker is an important subject, the discussion of which would take more time than that allotted to me in this symposium. In my work, I have made it a practice to treat all patients alike. The injured industrial worker is given every courtesy and as complete an examination as does any other patient. I try to be friendly and get acquainted with him and take time to listen to his story. I record the salient facts in chronological order and make careful notes of the date and place of the accident and witnesses to it, of the previous care, of the name of the employer, and other possible facts that may be pertinent from a compensation-insurance angle. I ask the patient why he came to the clinic and who sent him, as his attending physician or an attorney often is responsible and desires a report of the findings following completion of our examination, which they hope may throw some light on a baffling situation. Before the physical examination has been started, I usually tell the patient that the findings may or may not help his claim and that any report that I make will give the honest facts and he must not expect anything else. Frequently the answer is, "Doctor, I came here because I want to get well and I do not expect anything that I am not entitled to." Thus, I have started with a definite understanding and usually have the cooperation of the patient during the rest of the examination. Naturally, one meets malingerers and mental types of patients. In spite of my best efforts I often find it difficult or impossible to satisfy such patients.

Following the general physical examination and the recording of the history and the physical findings, laboratory tests, including urinalysis and examination of the blood as indicated, are carried out. Frequently the patient's condition is such that further consultation with other specialists is required. In such instances it is advantageous to have consultants quickly available. The effect of such consultation impresses the industrial worker as he realizes that he is receiving an impartial examination. After he has been informed about his condition, the findings are sent to his physician and employer. Thus, when the findings are discussed with him he feels confident of the truthfulness of the diagnosis and the etiologic factors involved; no longer can he say the company surgeon was biased in his decision. After the summary of the findings and the rendering of an opinion which fails to meet the patient's desires, I frequently have been impressed by the friendly spirit with which he receives the decision. I believe that this is largely the result of the physician's attitude toward the patient; some physicians emanate a spirit of antagonism the moment a legal or compensation patient enters their presence and once the patient becomes aware of this he responds in a like manner with the result that both parties fail to come to an amicable understanding. The physician who wishes to carry on successful relations with the employer and employe must, above all things, maintain a reputation for honest, impartial and scientific practice.

In the majority of industrial accidents the employer demands that the physician give an opinion as to the extent of the patient's injuries. Insurance or compensation factors frequently may complicate the picture and require further correspondence or even necessitate legal hearings, all of which are time-consuming. Oftentimes that which appears unnecessary red tape to the physician is in reality of paramount importance to the employer, to the insurance company or to the compensation board. The physician who has a complete record of the case, including the history, physical findings, the treatment instituted and the result, usually has little difficulty in meeting the requirements or demands for infor-

mation in case of litigation. On the other hand, the physician who may have given the most skillful care and obtained a satisfactory result may be left open to criticism and embarrassment when his records prove to be inaccurate or inadequate. It is obvious that all histories should be filed by name and number so that they may be readily produced together with roentgenograms.

Employers who pay for the medical care of industrial patients have a right to the coöperation of the attending physician in that their employes receive skillful care and be returned to work within a reasonable healing period. In some instances the patient, after recovering from his initial fear and pain, may find his income from compensation, insurance and so forth, so satisfactory and his leisure so enjoyable that he tries to postpone the day of his return to work. Every physician has met this type of individual who intentionally or unintentionally becomes a malingerer. In some instances the patient may be influenced by well-meaning friends or attorneys, and the physician who encourages such action soon may lose the respect of all persons concerned and his practice may suffer as a result. When a patient begins to show evidence of intentionally prolonging his disability, it has been my practice to tell him frankly that he should return to his work and that he will gain more financially, mentally and physically by so doing. Compensation boards and juries usually decide favorably where there is reasonable doubt as to the disability of the industrial worker. This may account for an increase in the number of such cases seen during the past few years. The employer pays through insurance premiums for the employe's protection as provided by law; therefore, both the employer and the employe should be protected from needless litigation. Unless there is coöperation by both parties, litigation and increased premium rates would reach such a magnitude that the employer would be threatened with bankruptcy and the employe with loss of employment.

The physician's role, his records and his opinion obviously play a vital part in the settlement of all questions involving industrial injuries. When he does his part honorably and well he commands the respect of all parties concerned.

What are some of the important factors one must take into consideration in the treatment of industrial accidents? Time is probably the most important factor in the treatment of the wound as immediate and adequate care may prevent infection in the majority of cases. The injured person must report to his foreman at once. A sterile dressing should be applied to the wounds and medical care should be made available within an hour or two. Most wounds are contaminated at the start and early cleansing with large quantities of soap and water aided by cotton, gauze or brush, as the occasion demands, are all that is needed to obtain healing by primary intention or rapid granulation. I am not opposed to the use of antiseptics following the cleansing and drying of wounds; in fact, I frequently use them. I believe that soap and adequate irrigation are more important than the use of antiseptics. Too much stress is laid upon the application of antiseptics and not enough on thorough cleansing. Certain techniques advocated in the care of wounds have as their basis primary thorough cleansing. Soap and water are practically always available and easy to use. I am not condemning dakinization, Orr treatment or the use of sulfonamides as I frequently employ these excellent types of treatment when in my opinion I believe it is impossible to cleanse a wound thoroughly. In those cases in which crushed, soiled and devitalized tissue is present, thorough débridement should be carried out until living healthy tissue is reached. When in doubt, the wound should be left open and packed or drained by means of soft flat rubber drains, which prevent formation of pockets and clots. I prefer to use an alcohol dressing following suturing of a wound as it permits oozing along the suture line. The blood is absorbed deeply into the gauze and is less liable to cause irritation than in a mass of blood which accumulates and causes maceration. If the edges of the skin are soiled they should be excised; I feel that this region is frequently the point at which infection occurs. I use tincture of iodine or merthiolate in preparing the skin for operation and also for application to dried cleansed fresh wounds.

A recent report by Dr. H. S. Dolan, presented before the American Association for Surgery of Trauma, is of interest. He reported 3,400 cases in which puncture wounds of the foot were caused by nails while men had been cleaning out the bed of an old canal. None of these patients was given tetanus antitoxin and tetanus did not develop in any of the cases. Every injured man was sent to his foreman, who applied

a clean dry dressing to the wound and sent the injured man to the surgeon, who excised the skin edges, inserted iodine or some other antiseptic and applied a dry dressing. Dolan emphasized the fact that the nails had pushed in the skin and had sealed the wound so that the deep part could not drain. I have a personal communication from an industrial surgeon who said: "there are 8,000 to 10,000 accidental wounds in this plant during a year, which include quite a number of puncture wounds of the hands and feet, and we have not had a case of tetanus in twenty-five years; tetanus antitoxin is used only in cases of wounds sustained on the street, stable or where contamination by equine excreta is a possibility. We never use gas serum and I can only recall one case of gas infection which occurred in a rather serious injury some days after hospitalization." I believe that this is not an unusual experience among surgeons who have the opportunity of caring for wounds immediately. The cases I see are those in which the patients report for medical care hours or days following injury. In such cases infection has already taken place. It is too late to expect cleansing and débridement to prevent prolonged disability and it is necesary to resort to the use of antitoxin, sulfonamides and operative treatment. In cases in which infection is evident but not localized, I prefer to place the patient at rest in bed and apply, continuously, packs that have been soaked in a warm mixture of equal parts of 95 per cent alcohol and saturated solution of boric acid. A soft nutritious diet and an abundance of fluids are indicated. The sulfonamide drugs should be administered to the point of intolerance in cases of severe infection. As soon as the infection becomes localized, adequate drainage should be established. Sulfathiazole should be employed in cases of staphylococcic infection and sulfanilamide should be employed in cases of streptococcic infection.* In cases of septicemia in which the proper drug is administered in adequate doses, the recovery rate is now as high as 70 to 75 per cent. Regardless of whether wounds are or are not associated with fracture, the local application of the sulfonamide drugs has proved encouraging in the prophylactic and curative treatment of infection. Usually the wound is dusted with 7 gm. of dry powder or is irrigated with an 0.8 per cent solution.

*Penicillin has now proved invaluable in staphylococcic infections and septicemia.

Time will not permit a consideration of fractures but I would like to mention a few points in this connection. In all cases in which an injury of the bone is suspected, anteroposterior and lateral roentgenograms should be made. Each roentgenogram should be marked by a permanent method so that it will be possible at any time to determine with certainty (1) the date on which the roentgenogram was made, (2) the case number and name of the patient, (3) the situation of the bone, that is right or left, and (4) the name of the roentgenologist. Other roentgenograms should be made at various periods after reduction of the fracture. Such roentgenograms not only protect the surgeon but enable him to detect slipping of the fragments and the progress of union.

There is no substitute for surgical judgment. In each case of fracture one must consider the relative value of operative and nonoperative treatment. It can be said, however, that the majority of fractures can be treated successfully by conservative methods. Too much stress has been laid upon the postoperative roentgenologic appearance of fracture and not enough upon the functional result. The tendency to convert a closed fracture into an open one has in many instances resulted in a catastrophe and permanent disability. The mature surgeon, working in the best surgical hospital environment and endowed with natural skill, may obtain far better results than those obtained by a physician who attempts to operate in a less favorable environment. Whenever a closed fracture can be reduced properly and fixed without impairment of circulation (vascular supply) or nerves, it is wise to avoid open reduction. Operation should be employed for certain types of fractures. In certain cases one may anticipate difficulty of reduction and the development of complications. In such cases, undue periods of disability might arise if conservative treatment were employed.

A compound fracture should be cleansed with meticulous care. It is advisable to remove small loose fragments which have been displaced; then the fracture should be reduced. Unless the surgeon feels confident of the cleansing of the wound, it is advisable to apply sulfonamides, institute drainage, employ the Orr treatment or dakinization. It is essential that the injured parts should be placed at absolute rest following cleansing and débridement. I use plaster of Paris padded with gauze and sterilized wool bandage

and I usually immobilize the neighboring joints. Colles' fractures are usually splinted with a plaster dorsal splint, and the elbow and fingers are permitted to function. In the treatment of fractures of the neck of the femur the value of nailing has been definitely established and this is now recognized as the quickest and most efficient method of treatment. Fractures about the elbow require the constant attention of the physician and the nursing staff in order to prevent interference of circulation in the forearm and the dreaded complication of Volkmann's ischemic contracture.

In the limited time available, it is obviously impossible to consider many of the problems which confront the physician in the management of industrial injuries.

Summary

Good will and a definite understanding with the industrial worker will facilitate the management of industrial injuries. Accurate records are essential; these should be preserved and should be readily available at any time. Physical and laboratory examinations often lead to unrecognized conditions that have an important bearing on the healing period. The record of treatment carried out, its results, and a follow-up report, whenever possible, are of importance in determining the extent of disability and in settling claims for compensation. The coöperation of the employer, employe and physician is essential. The health of the industrial worker is more important than financial compensation.

A DEODORANT FOR COLOSTOMIES

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TO the average individual faced with the prospects of a permanent colostomy, the greatest handicap usually proves to be the very disagreeable odor associated with it. Many become very adept in regulating their bowel movements, but the absence of a sphincter muscle leaves the individual unable to control the escaping gas, and at times, some of the fecal discharge. Various pads, cups, and belts have been tried, and while these tend to keep gross soiling to a minimum, nevertheless all these will of themselves in time become offensive, and also, they will not prevent the escape of malodorous gases.

To realize to what degree this may affect an individual, all that is necessary is to look up the record of those unfortunates who preferred death and, in fact, took their own lives, rather than face the future with a permanent colostomy. Some feel themselves social outcasts, and even members of their immediate family find it difficult to aid them, so that their lives must be entirely changed. It has been very difficult, if not impossible, for many to return to their former occupations.

In view of these facts, surgeons have endeavored to perfect their techniques in anastomosis in order to do away with some of the colostomies, and greater risks are taken to restore the normal intestinal continuity. This has led, perhaps, to an increase in the immediate surgical mortality.

However much more agreeable it may appear to the individual to have a sacral anus than one on the anterior abdominal wall, still the toilet of an abnormal anus is difficult. In either case, diets to constipate the patient so that it is only necessary to have a movement every other day are the most important, but the longer the fecal matter is retained, the more foul gas may be produced, and its uncontrollable escape presents a problem.

As a result of the foregoing, I interested Dr. W. J. Tomsicek, Chief of the Chemistry Department of St. Thomas College, in the hope that he might possibly be able to suggest some chemical which would counteract the odors coming from a colostomy.

He went to work on the problem with enthusiasm, and after considerable experimentation has developed a compound which can be given in a small capsule two to three times a day before meals, which does away with all the objectionable odors connected with colostomy. Since using these deodorant capsules at the hospital, we have been able to place these colostomy patients in

a two- or four-bed ward without embarrassing any member in the room. Having tried these capsules on patients who are ambulatory and attempting to work in spite of their handicap, they can well attest to the value of the compound. After taking these capsules for a time, and being able to carry on their duties as salesman, stenographer, or housewife, we have had them discontinue the medicine for a while. It was not long before every one insisted upon returning to the capsules. A noticeable effect was apparent in the homes where the various members of the family were able to return to a more normal life. Apologies for the odors were unnecessary.

Its value does not stop there. It has been used in cases of extreme flatulence with excellent results, as the gas that was passed was odorless. This fact should offer further possibilities for the use of this material for patients in ward beds, as anyone who ever cared for patients in a room of two or more beds can testify that anything to reduce fecal odors would be more than welcome.

This substance is not absorbed from the intestinal tract, and has had no deleterious effect upon any of the patients who have used it. Its simplicity and thorough effectiveness make it a most valuable adjunct in the postoperative treatment of the unfortunate patient who is forced to live with a colostomy.

The compound used consists of an especially selected, treated, and activated carbon, 90 per cent, plus phenylsalicylate, 10 per cent. It is put up in sealed enteric-coated capsules to prevent action by the stomach secretions which would nullify its effectiveness. Its action is by adsorption.

TRAUMA OF THE SPLEEN

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Saint Paul, Minnesota

INJURIES to the abdomen result in trauma to the spleen much more frequently than is commonly supposed. In reviewing the literature, we have found the incidence to vary from 20 per cent to nearly 50 per cent of all injuries to abdominal organs. Robitshek, quoting Berger, says that 20 per cent of cases of injury to abdominal viscera showed rupture of the spleen. Harris quotes Mazel to the effect that 30 per cent of all abdominal injuries show splenic trauma. Experience and clinical judgment are required to make a diagnosis, for frequently where the injury seems to be minimal, rupture of the spleen will be found to be present. Awareness of this possibility coupled with close observation of the patient for a period of a few hours may be of invaluable assistance in guiding one's procedure.

In checking our files and those of the Ancker Hospital for the years since 1933, we have found eighteen cases requiring splenectomy for trauma to the spleen. Of these, fourteen were nonperforating injuries while four were perforating wounds of the abdomen. In the first group of fourteen cases there were three deaths, two of which occurred with complications other than splenic rupture, a mortality of 21 per cent. One patient (Case 10) was severely crushed in a cave-in, dying upon the second postoperative day. Another (Case 11) died upon the thirty-sixth postoperative day and was found at autopsy to have typhoid fever, though stools and blood cultures had been negative before death. In the second group of four cases (all gunshot wounds) there was one death, a mortality of 25 per cent. This death was in a twenty-five-year-old man who had forty-two perforations of the bowel, with lacerations of the diaphragm and kidney. He developed bronchopneumonia and died upon the seventeenth postoperative day. The total mortality for the eighteen cases was 22.2 per cent.

There were three cases in which there were associated perforating wounds of the gastro-intestinal tract. The wounds in two were due to gunshot wounds and one was received in an automobile accident. In this group there was perforation in one case each of the stomach, small bowel and colon. Only the patient with perforation of the colon died. The one with the perforated stomach made a slow recovery complicated by pneumonia and pleural effusion, while the one

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with the perforation of the small bowel made an uneventful recovery. The mortality in this group was one in three or 33 per cent.

The mortality in the uncomplicated cases was one in nine or 11 per cent while that of the complicated group was three in nine or 33 per cent. In a report from the clinic of Rousselot and Illyne there was no mortality in the uncomplicated cases as compared to 62.5 per cent in the complicated.

Etiology

Most recent articles on this subject show automobile accidents to be the greatest single cause of trauma to the spleen, with the greatest age incidence in the group from eleven to twenty, males predominating. This series is no exception. Car accidents accounted for 39 per cent of the series, while other blunt injuries such as falls, sliding and coasting accidents accounted for 33 per cent. Gunshot and crushing wounds made up the rest. Eleven cases or 60 per cent were in the age group from eleven to twenty, while twelve of the individuals (67 per cent) were males.

Pathology

McIndoe, in 1923, classified splenic trauma into three groups according to the severity of injury, and to this a fourth has been added by various authors. These consist of the following: (1) minor capsular tear with contusion of the pulp; (2) intrasplenic and subcapsular hematomata without capsular rupture; (3) deep pulp and capsular rupture with perisplenic hematomata; (4) complete severance of the splenic pedicle. Examples of the first group are seldom recognized as operation is usually not required. We had one case which probably belongs to this group. Likewise group two is seldom seen, though it is this group, along with the encapsulated perisplenic hematomata of group three, that may account for the so-called "delayed hemorrhage." In group three belong the majority of cases (thirteen of ours). Group four is rare: Blocker[2] in 1939 collected seven such cases from the literature and reported one of his own. We had none in this group. In sixteen of our cases there was associated hemoperitoneum.

Not fitting well into any one of these groups were our cases of gunshot wounds. While two of these patients had lacerations of the pulp and capsule with free bleeding into the peritoneal cavity, and so could, perhaps, have been put into group 3, two of them had perforation of the splenic substance and capsule with no bleeding. In general, gunshot wounds are probably best classified under group 3.

Symptoms and Signs

The history of a blow or gunshot wound is usually given. Unconsciousness is rare and, if present, is probably due to something other than the trauma to the spleen. Following the blow the patient complains of severe, generalized abdominal pain. Shortly afterwards this tends to localize upon the left side, though frequently somewhat below the region of the spleen. Occasionally vomiting may follow, but we had no case in which hematemesis was noted. There appears to be some disagreement among various authors as to the frequency of associated shoulder pain (Kehr's sign). It was recorded in one-third of our cases, and Anderson, in a series of ten cases in children, found it in 50 per cent. Since it may not come on until three to four hours after the accident, and since the patient may not offer the information spontaneously because of the relatively much greater abdominal pain, we feel that it may have been missed in some of our cases. It is a quite significant symptom and should be inquired about in any suspected case.

Upon examination a certain degree of shock is noted. A peculiar yellowish color, much like a patient with generalized carcinomatosis, may be present. There is a worried expression. Blood pressure is normal to low, pulse increased to 120 to 150, and temperature 99 to 101 degrees. One of the most constant signs is rapidity of respiration, frequently with pain upon inspiration. Generalized abdominal tenderness and rigidity, but most marked upon the left side, is present. Rebound tenderness may be elicited. Fixed dullness in the left upper quadrant (Ballance's sign) was found in but two of our patients but probably was not looked for routinely. Microscopic hematuria was seen frequently, but gross blood in only three instances. Of these, all but one showed kidney damage at operation, sufficient to justify removal. One patient who, at operation, was found to have a perforated kidney, did not have even microscopic blood in the urine.

Following the initial examination when rupture of the spleen is suspected, the patient must

be observed closely. A white count and hemoglobin is done immediately and repeated every thirty to sixty minutes. Hemoglobin may be normal or even high, early, but as the shock of hemorrhage replaces the traumatic shock it gradually falls. Harris has recommended the determination of the specific gravity of the blood to ascertain the degree of shock and hemorrhage, believing it is much more sensitive than hemoglobin and red blood counts. The white blood count may also be normal or but slightly elevated at first, but as bleeding increases it rises to 20,000 or 25,000. A flat plate of the abdomen may be of assistance. Air under the diaphragm, increased density in the left upper quadrant, elevation of the left leaf of the diaphragm or displacement of the stomach to the right by blood clots in the peritoneal cavity, may be noted. To aid in confirmation of the diagnosis Wright and Prigot have used the abdominal tap for presence of blood. In their hands it has been very helpful as well as reliable.

Blood pressure, pulse and temperature should be checked every fifteen minutes; the abdomen examined frequently. Should all findings become stabilized or recede, the patient may be sent to the surgical floor for observation. Criteria for surgical exploration are increasing shock as manifested by falling blood pressure and rising pulse rate, falling hemoglobin with a rising white count, and increasing abdominal tenderness and rigidity. Of course, with gunshot wounds the direction of the bullet or shot will affect the indications for operation, but the maxim for guidance in perforating wounds should be, "when in doubt, explore."

Perhaps, at this point, some mention should be made of the so-called "delayed hemorrhage" or "two-stage rupture" as it is known in foreign literature. McIndoe in 1932 collected forty-five of these cases from the literature and added one of his own. Webb collected twelve more up to 1939 and added one of his own. Since then several more cases have been reported. Following an injury to the spleen Baudet described a latent period during which the patient is relatively asymptomatic. This latent period may last anywhere from a few minutes to several hours before the patient begins to have signs of bleeding. McIndoe arbitrarily set the limit of this "latent period of Baudet" at forty-eight hours; any case developing signs of bleeding after this forty-eight-hour period is classified as a "delayed hemorrhage." The pathology here is thought to be a subcapsular or encapsulated hematoma which subsequently ruptures. The patient has the history of a blow, frequently very minor, with perhaps a slight amount of pain at the time. After a few hours in bed he may feel well enough to continue with his daily activity. Then, in a few days, during some slight strain, he develops suddenly the signs and symptoms of intra-abdominal hemorrhage. This secondary rupture usually occurs between the third and ninth day, but in one reported case it was delayed as long as six months.

Case Reports

Two in our series were cases of delayed hemorrhage:

Case 6.—A thirteen-year-old girl was hit just below the left costal margin by the handle-bars of a bicycle. She had some pain in the left flank with nausea at the time, but was able to attend school the next day and for the rest of the week. Pain was present in the left side only upon twisting her body or breathing deeply. During the night of the fifth day following the accident she was awakened by a severe pain in her left side, constant and worse upon breathing. She was brought to the hospital where she was found to have considerable tenderness in the left upper quadrant and left flank, with rigidity of the entire abdomen, most pronounced in the left upper quadrant. There was a moderate amount of distention. The hemoglobin was 48 per cent and shortly later 42 per cent. She was operated upon and a subcapsular hemorrhage and hematoma found with free bleeding into the peritoneal cavity. Recovery was uneventful.

Case 11.—A young man, aged twenty, while playing basketball ten days prior to admission, was hit in the left side of the abdomen by the head of another player. For the next five days he had considerable malaise, tenderness around his umbilicus, and pain upon respiration. On the sixth day he felt fairly well and went to work, but on the following two days had a recurrence of the pain which necessitated his staying in bed. Again on the ninth day he returned to work but while there developed profuse sweating, dizziness, and nausea and vomiting. He was brought to the hospital where examination of the abdomen showed diffuse tenderness with moderate rigidity. Blood pressure was 95/54. The hemoglobin was 68 per cent, red blood count 3,520,000, and the white blood count 13,200. At operation the spleen was ruptured and markedly enlarged. Pathological examination did not disclose the reason for the splenomegaly, but the pathologists suggested a blood dyscrasia or some such severe infection as bacterial endocarditis. Blood studies and cultures, stool cultures, and agglutination tests were all negative.

After a very stormy course during which he developed bronchopneumonia with pleural effusion, subphrenic abscess, and evisceration of his wound, he died upon the thirty-sixth postoperative day. Autopsy showed areas of ulceration corresponding to the location of Peyer's patches, and the microscopic picture was compatible with a diagnosis of typhoid fever.

Treatment

It has been shown that in nonsurgically treated cases of ruptured spleen the mortality is 90 to 95 per cent. Surgically treated, most reports give a mortality of 25 to 40 per cent for nonperforating wounds, with an average of about 30 per cent. For perforating wounds the mortality is almost twice as great or around 60 per cent. As to procedure, most surgeons consider splenectomy the only advisable operation. Foster and Prey suggest that some gunshot wounds may be amenable to suture, and that for the very critical patient tamponade is acceptable. In all individuals in our series splenectomy was performed.

Preoperatively a transfusion may be imperative. Where the operator is quite certain of the diagnosis the spleen is exposed very well by a transverse incision; however, for the general abdominal exploration the left rectus incision is preferable in that it allows examination of the rest of the abdominal contents more easily. The spleen is removed, care being taken to avoid the tail of the pancreas, and the pedicle doubly ligated. Clots are removed from the abdominal cavity and any free blood may very advantageously be used for an autotransfusion. The abdomen is closed without drainage. Postoperatively transfusions are given as indicated. Otherwise the care is much the same as for any other upper abdominal operation. Excluding those patients who died and two who were transferred to other hospitals before complete recovery, the average postoperative hospital stay for those who had a nonperforating wound was twenty-one days with extremes at eleven and thirty. For those with perforating wounds the average was 29.3 days with extremes of eleven and forty-eight. The total average hospital stay was 23.5 days.

Complications

Foster and Prey call attention to the high incidence of wound disruption and intestinal obstruction following splenectomy. A report from the clinic of Rousselot and Illyne found postoperative shock, atelectasis and wound infection to be the most common complication.

Six of our patients developed postoperative complications, some having more than one, with order of frequency as follows:

Bronchopneumonia with pleural effusion	4
Evisceration (both died)	2
Subphrenic abscess	2
Postoperative shock with death	1
Slough of wound—died	1
Minor wound infection	1
Abdominal adhesions	1

Summary

We have presented eighteen cases of splenectomy performed for rupture of the spleen. While realizing that such a small series presents no opportunity for generalizations, we have divided the cases in various ways, so comparing the mortality of those with abdominal perforation to those without; of those with perforation of the gastrointestinal tract to those without; and those with other complications than rupture of the spleen. Two cases of delayed hemorrhage were briefly presented. Symptoms and signs, criteria for exploration and treatment are discussed.

SUBSTANCE IN LIVER GOOD FOR SHOCK DUE TO BURNS

A substance in liver, and in some commercial liver extracts used for treatment of pernicious anemia, is effective in fighting shock due to burns, Dr. Myron Prinzmetal, Dr. Oscar Hechter, Dr. Clara Margoles and George Feigen, of the Cedars of Lebanon Hospital and the University of Southern California, discovered in experiments with rats *(Journal, American Medical Association,* July 10).

The antishock substance in liver is not the same as the anti-anemia principle. Efforts are now being made to isolate it.

War workers whose jobs require "difficult muscular effort" and who cannot because of local food and eating place conditions obtain adequate diets should be given doses of the vitamin B complex to keep up their strength and work output, it appears from the report of studies at Northwestern University Medical School by Dr. Clifford J. Barborka, Dr. Eliot E. Foltz and Dr. Andrew C. Ivy, who is now on leave serving as scientific director of the Naval Medical Research Institute, Bethesda, Md.—*Science News Letter,* July 17, 1943.

CLINICAL-PATHOLOGICAL CONFERENCE

MINNEAPOLIS GENERAL HOSPITAL

A. J. Hertzog, M.D., and S. V. Lofsness, M.D.
Pathologists

Presentation of a Case
A-43-1049

DR. ARTHUR: This is the case of a twenty-eight-year-old man who was admitted to the Medical service on May 29, 1943. He expired two days later. His illness began one year previously when he began to suffer from severe diarrhea which grew progressively worse. He worked most of the time but occasionally had to go to bed because of weakness. Some days he had as many as thirty bowel movements and noticed mucus and small amounts of bright red blood in his stools. About eight weeks prior to admission, he complained of extreme malaise and anorexia in addition to the diarrhea. In April of this year, he was admitted to a private hospital for a complete work-up. His temperature varied from 98 to 100 degrees. General physical examination was negative except that an enlargement of his liver was noted. A proctoscopic examination was done and reported to be negative. However, the examiner said that the colon was not prepared and that the examination was not entirely satisfactory. X-rays of his chest and a gastro-intestinal x-ray study were reported as negative. The hemoglobin was 81 per cent. Agglutination tests were all negative except a one to twenty agglutination for Proteus X19. Stool examinations were positive for pus and blood. A technician in the private hospital reported on April 24 that organisms in the stool were found that resembled Endameba histolitica. A diagnosis of amoebic dysentery was made. He was treated with emetin hydrochloride with no appreciable improvement. On returning home, he grew weaker and the diarrhea persisted. There was considerable pain over the lower abdomen that was aggravated by bowel movements.

Physical examination on admission here showed him to be acutely ill. The blood pressure was 98/80; pulse rate 80; and temperature 99 degrees. There were moist râles over both lungs posteriorly. The heart was negative. There was extreme tenderness over the entire abdomen. The liver was greatly enlarged; it extended to the umbilicus and was extremely tender. Rectal examination revealed a large mass in the lower rectum. It could be felt easily by the examining finger. It was hard and fixed to the surrounding tissues. Hemoglobin was 88 per cent; leukocyte count was 24,850 with 83 per cent neutrophiles. Urinalysis was negative except for an occasional cast and pus cell. An examination of a fresh liquid stool was negative for amebæ. On the day after admission, his pulse and blood pressure became unobtainable. He was given plasma transfusions but expired approximately 48 hours after admission. The clinical diagnosis, based largely on the history obtained from the private hospital, was amebic dysentery with abscesses of the liver. It was thought that he may have had a terminal peritonitis.

DR. A. T. STENSTROM: X-rays of his chest show a slight generalized cardiac enlargement involving both the right and left sides of the heart. There is some infiltration in the right costophrenic angle which looks like pneumonia. There is also some increase in the markings in the left base. A plate of his abdomen taken in the upright position shows no evidence of gas under the diaphragm, as one would expect if there were a perforated viscus. There is a large shadow taking up almost the entire abdomen that looks very much like a tremendously enlarged liver.

DR. HERTZOG: Do we all accept the diagnosis of amebic dysentery with multiple abscesses of the liver?

DR. WALCH: The diagnosis was made elsewhere. We first saw him shortly before he died. The single stool examination done here was negative for amebæ. The large rectal mass found on examination could be an amebic granuloma.

STUDENT:
What is the significance of the positive agglutination of one to twenty with Proteus X19?

DR. HERTZOG: This is the Felix-Weil reaction. In a high dilution, a positive agglutination test with a strain of Proteus X19 organism is helpful in the diagnosis of typhus fever and Rocky Mountain Spotted fever. However, a positive agglutination at a one to twenty dilution is a frequent finding in routine examinations and has no significance. Did the technician elsewhere describe what she saw when she reported the stool positive for Endameba histolitica?

DR. LOFSNESS: No, she reported that she found organisms resembling Endameba histolitica, without specifying whether they were motile forms or cysts.

DR. HERTZOG: The laboratory diagnosis of amebiasis is not always easy. There are many chances for error. It is much easier to recognize the motile trophozoites than the cysts. The motile forms are usually found only in semi-fluid or liquid stools. There are no less than five species of amebæ capable of living in the intestinal tract of man and only one of these, Endameba histolitica, is pathogenic. Hence, the laboratory worker is always confronted with the problem of differentiating between the various types of amebæ, particularly the common non-pathogenic Endameba coli.

Autopsy Findings

DR. ARTHUR: The body was somewhat emaciated. The abdominal cavity contained approximately 100 c.c.

of clear, straw-colored fluid. There was no evidence of any perforation or peritonitis. The liver edge extended 12 cm. below the right costal margin. The pleural cavities each contained approximately 2,500 c.c. of clear fluid. The heart weighed 490 grams and appeared markedly dilated without any appreciable hypertrophy. The right lung weighed 920 grams, and the left 940 grams. They were both markedly edematous. The spleen weighed 180 grams and appeared normal. The liver was greatly enlarged; it weighed 4,790 grams and contained multiple large, solid, greyish-white tumor masses. The largest measured 8 cm. in diameter. They had the typical gross appearance of metastatic carcinoma. The rectum contained a large, necrotic ulcerated carcinoma, 6 cm. in diameter. It was adherent to the surrounding structures. The colon showed no evidence of ulcerative colitis.

DR. LOFSNESS: This section is from the rectum. It shows an adenocarcinoma invading the wall of the rectum. The overlying mucosa has been destroyed. There is some tendency on the part of the rapidly growing epithelial cells to form glands. Sections of the colon show only a few leukocytes in the mucosa. There are no amebæ. The liver shows widespread metastatic carcinoma.

DR. HERTZOG: Most carcinomas of the rectum can be readily palpated with the examining finger. It is well to keep in mind the inability to recognize carcinoma of the rectum by colon x-ray studies, as the bones of the pelvis obscure the lower rectum.

DR. A. T. STENSTROM: The roentgenologist does not attempt to diagnose carcinoma of the rectum by x-ray. They are extremely difficult to visualize, even when one knows a carcinoma is actually present.

DR. LOFSNESS: Carcinoma of the rectum in men 28 years of age are rare, but they occasionally do occur. In a series of over 2,000 cases, Rankin and Comfort reported that the incidence of carcinoma of the rectum in persons thirty years old or less was 3.85 per cent of the total.

Anatomical Diagnosis: (1) Carcinoma of rectum with metastasis to liver. (2) Edema of lungs. (3) Bilateral hydrothorax.

CASE REPORT

ROCKY MOUNTAIN SPOTTED FEVER

H. R. TREGILGAS, M.D.
South Saint Paul, Minnesota

AT least two rickettsial diseases, Rocky Mountain spotted fever and typhus fever, are of extreme interest at this time. Rocky Mountain spotted fever, also called tick bite fever, is no longer limited to the mountain states, but is prevalent in many sections, particularly along our eastern seaboard. Diseases having similar clinical syndromes and serological characteristics have been reported from several areas throughout the world.

Typhus has assumed an increased significance because of the present military conflict. None can forget the terrible epidemics of the last war, when during a six months' period, 150,000 persons died in southeastern Europe as the result of this disease. Today, typhus has spread through opposing armies and civilian populations, and prophylaxis is, therefore, of paramount importance.

The seasonal incidence and geographic distribution of the two diseases are dependent on the life cycle of the vector and its occurrence in nature. Spotted fever, which is transmitted by ticks, occurs in the spring and summer. Louse-borne typhus is most likely to be epidemic during the winter in cold climates when hygienic standards of living are low. Flea-borne, or murine typhus, which is confined to the more temperate climates, is apt to appear at any time of the year, summer being the most favorable season for small epidemics.

Dr. Howard Taylor Ricketts, formerly pathologist from the University of Pennsylvania, while working, in 1909, on the experimental transmission of Rocky Mountain spotted fever to animals, was the first to observe and describe small microörganisms, in the blood of infected animals, and in the tissues of ticks, which differed morphologically from other known species of bacteria. In 1910 he died of typhus fever contracted in Mexico during the course of his investigation of the disease. Later workers paid tribute to his memory by giving the name Rickettsia to this genus of infectious agents.

The rickettsial diseases are divided into three main groups:

1. *Rocky Mountain spotted fever* was so named because of its occurrence in the Bitter Root Valley district, where the disease had always been more severe, with an 80 per cent mortality. In the Brazil area where the disease is called Sao Paula Disease the mortality is 70 per cent. In the Mediterranean countries it is called Mediterranean Fever, with a more mild course and a lower mortality, running about 10 or 15 per cent. Another area of the disease is in South Africa.

2. *Typhus,* with a higher mortality.

3. *Japanese River fever,* which has a varying mortality.

Rocky Mountain spotted fever is carried by three kinds of ticks:

1, The Rocky Mountain wood tick. The disease spread by this insect has an 80 per cent mortality.

2. The common dog tick is the vector of most of the cases in the central and southern parts of the United States. The mortality is 20 to 30 per cent.

3. The rabbit tick is the cause of most cases in eastern parts of the United States where the mortality is 6 to 10 per cent. Dr. Robert Green of the University of Minnesota has done considerable work on the rabbit tick. He has found that only 3 or 4 per cent of ticks on rabbits are infected. Also Dr. R. R. Parker of the U. S. Laboratory in Hamilton, Montana, found the same percentage of tick infection.

Dr. R. R. Parker of the Montana laboratory has done extensive work with the ticks in that region. In collecting them, they fasten a blanket to a board and pull it behind a horse, through the weeds, and when it is turned over, it is literally covered with thousands of these wood ticks. Each tick is then examined individually for this infecting organism. Likewise several thousand ticks have been removed from one animal and each one examined separately to get the percentage of infected ticks.

In many cases the tick is first discovered by the individual on the back of the neck where after crawling up the clothing it first reaches the skin.

Dr. R. R. Parker has found that the tick feeds for several hours on the person before giving off the infected material, so that if the person is conscious of being bitten, he may not be infected if the tick is removed in time. The Rickettsia is a virus the size of which is said to be somewhere between that of bacteria and the filtrable viruses. It only grows in the living tissue and its best culture medium is the living egg embryo. This is used for the preparation of vaccine for prophylactic treatment.

Symptoms.—The incubation period in man is from two to five days in severe cases, and three to fourteen days in mild cases. There may be a distinct chill, marked malaise, sweating and pronounced headaches. Photophobia, pain in the upper part of the abdomen, and pain in the bones and muscles are rarely absent. Hemorrhages, nausea and vomiting may also be present. Eyes may appear dull and inflamed. The severity of symptoms increases rapidly in more severe cases. The pain in the muscles and bones may diminish with the appearance of the rash on the fifth to seventh day. The spleen is enlarged by the third day. Edema may be present in the extremities and on the face.

The rash developed first on the ankles, wrists and forehead and spreads over the body. The spots begin as bright rose spots, commonly macular and sometimes papular, about as large as the end of the finger. They finally cover most of the body including the palms and soles. Usually they are less marked on the abdomen. The color at first disappears on pressure and the more scattered the spots, the more color that remains on pressure, and the slower the infection progresses, the better is the prognosis. Small pinhead spots that rapidly become dark and hemorrhagic and confluent, indicate a more severe infection. The average febrile period is from two to three weeks. In nonfatal cases the pulse seldom exceeds 90, but in severe fatal cases, the pulse becomes shallow and may range from 110 to 160. A pulse over 150 and a temperature over 104 degrees are usually significant of a fatal case.

High pulse and fever soon after the onset are also unfavorable signs. Patients usually remain mentally clear even in fatal cases up to the last. There may be an ankle clonus and a positive Babinski sign. A slight rigidity of the neck is not uncommon. Vomiting is most common during the first few days, but may occur later. Jaundice is not uncommon and in some fatal attacks is a marked terminal condition. There is no significant pathologic change in the blood except the Weil-Felix proteus reaction which is positive after ten days.

Diagnosis.—Diagnosis is based on history, clinical findings, Weil-Felix proteus test and the typical rash. Rocky Mountain spotted fever is often confused with typhoid, measles, scarlet fever, smallpox, post-measles encephalitis, purpura hemorrhagica, epidemic cerebrospinal meningitis, secondary syphilis, Colorado tick fever and endemic typhus. Nonspecific reactions that sometimes follow tick bites may simulate the onset of spotted fever, but such reactions subside rapidly after the removal of the tick.

Treatment—Treatment is symptomatic. Codeine probably is the best drug. Serum obtained from immunized rabbits has been used with various results.

Prophylaxis.—Control of the tick carriers of Rocky Mountain spotted fever has not proved feasible. The most important protective measures are to avoid tick bites by wearing suitable clothing and the early removal of ticks. High boots are very important because ticks usually transfer from vegetation to the clothing at a height of less than 18 inches from the ground. They then crawl up the outside surface of the clothing.

Women who go into tick-infested areas should always wear men's attire and high boots and examine body frequently for ticks. Ticks seldom attach at once, and, since they but rarely transfer infection until they have fed for several hours, examination made twice a day, at noon and on retiring, is usually sufficient. In particularly dangerous areas, however, more frequent examinations are indicated or, at least, any local irritation should be investigated to determine the cause.

When one retires, all clothing should be removed. This is mentioned because of the common habit among campers and many persons working outdoors of wearing part of the daytime garments at night. Both the body and the clothing should be carefully examined, and the clothes should be so placed that any undiscovered ticks are unlikely to crawl from them into the bed. Exceptional care should be used when two persons occupy the same bed. If an infected tick becomes detached from one and attaches to the other, infection of the latter may take place quickly because the virus has already been reactivated. Instances of double infections caused in this manner by a single tick are

quite common. In one known instance three persons were thus infected by one tick.

Vaccine made at the Montana state laboratory is given subcutaneously in two 2 c.c. doses five days apart. Vaccine must be given yearly and is a partial protection against severe cases and fully protects against the mild. During the last thirteen years 9 per cent of the vaccinated individuals died as against 76 per cent of unvaccinated. Younger people respond better to vaccinations than older and have a lower mortality.

Tick paralysis is a more localized problem. It is reported from parts of Oregon, Washington, Idaho and Montana but is perhaps most prevalent in southeastern British Columbia. As far as known, it is caused only by the female Rocky Mountain wood tick and clears up after the surgical removal of the site of the tick bite.

Report of Case

Miss L. G., a young woman of twenty, spent her vacation of two weeks in August, on the seashore near Jacksonville, Florida.

She returned from her vacation, August 25, feeling well. Three days later, on August 28, she developed a severe headache, and went home from work. She had a high fever and chilly sensations. She had no real chills. She complained of a weakness and an aching feeling over the back, legs and entire body with continued headaches.

She was seen at home, and was treated for the grippe with the usual medications and sulfathiazole. She had a slightly reddened throat and other than a temperature of 104 degrees, there were no findings. Her skin was tanned and peeling from the Florida sunshine. There was no rash present.

On August 31, four days later, her mother called and said she had noticed a rash on her forehead, hands and feet. There was no rash on her body at the time. She was taken to the hospital, isolated, and was checked for typhoid, undulant fever, pulmonary infection, tularemia and septicemia. The rash up to this time had developed to a generalized macular spotted eruption extending over forehead, face, neck and body. It was also present on the wrists and ankles, legs and arms, including the palm and soles. These spots were about the size of a dime, and had a small red spot in the middle of each one. Normal skin appeared between each of these spots, giving the skin a definite spotted appearance, very much like the measles. This rash faded after several days, and just the small red spot was left in the center where each macule had been previously, and this disappeared on pressure.

The blood count was quite normal. Her hemoglobin was 80 per cent. She had four million red cells and twelve thousand white cells. Urine was normal except for a slight trace of albumin. Agglutination for Malta fever, tularemia and typhoid groups were negative. The blood cultures were sterile. Hemolytic streptococcus and colon organisms were isolated from the urine cultures.

It was suggested that a proteus agglutination be made for spotted fever or typhus. This showed a positive agglutination in a dilution of 1/30,000, which was the highest dilution the hospital laboratory had ever found. This made a diagnosis of either typhus or spotted fever, and from the fact that the rash began on her wrists, ankles and forehead, and also involved the palms of her hands and soles of her feet, a diagnosis of Rocky Mountain spotted fever was made. The rash in typhus fever appears on the chest and back and only involves the body. It usually does not extend to the hands and feet.

Her temperature on admission to the hospital was 104 degrees. The patient had been having 60 grains of sulfathiazole daily for a week previously with no effect. Intravenous Creosote was tried on the 5th of September, the third day in the hospital, and was given daily for four doses. The temperature receded gradually, and became normal from 103 degrees, one day after four daily doses of intravenous Creosote. The patient said she felt much better after these intravenous injections and asked to have them continued.

The patient's general condition had improved a great deal by the seventh day when her temperature was normal and she was discharged on the eleventh day.

A blood specimen was sent to the United States Public Health Service Rocky Mountain Laboratory at Hamilton, Montana, which is run by Dr. R. R. Parker. The report came back with a definite positive proteus agglutination, which they said indicated the diagnosis of Rocky Mountain spotted fever or typhus, and due to the location of the rash, and the geographic location, this was undoubtedly a case of Rocky Mountain spotted fever.

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POLIO EPIDEMIC MAY BE COMING THIS SUMMER

Signs that an epidemic of infantile paralysis may be brewing for this summer appear in reports, from southwestern states especially, to the U. S. Public Health Service.

For the week ending July 3, latest for which figures are available, the total number of cases reported from all states and the District of Columbia was 190. The increase over the previous week's total of 136 cases is made up of increases reported from Texas, where the cases jumped from thirty-nine the week of June 26 to eighty the week of July 3, and Oklahoma, which had an increase from eight cases to twenty-three.

Infantile paralysis cases are expected to increase at this season, but the total number of cases reported since the first of the year was larger, on June 26, than for the same period of any years since 1934. The total for the first six months was 894, of which more than half were reported from California and Texas.

In California the cases seemed to be concentrated in Los Angeles County and other southern counties. For the week ending July 3, however, this state reported fifty-seven cases, which is one less than for the previous week.

No other state reported more than five cases for the week of July 3.—*Science News Letter*, July 17, 1943.

HISTORY OF MEDICINE IN DODGE COUNTY

BY JAMES ECKMAN
Rochester, Minnesota

and

CHARLES E. BIGELOW, M.D.
Dodge Center, Minnesota

(Continued from July issue)

Dr. John A. Sorg (1869-1898) was licensed to practice medicine in Minnesota on the same day Doctor Edgerton received his license; moreover, he was a classmate of Doctor Edgerton in the University of Minnesota College of Medicine and Surgery. It is believed that Doctor Sorg was in Kasson for a short while in 1896, possibly soon after his graduation from medical college in June. It is known that he was licensed to practice medicine in North Dakota on April 14, 1898, and at the time he was said to be living in Dickey County in that state.[158]

At some time in 1896 **Dr. George Ranson** (1871-1899), son of Dr. Stephen W. Ranson (1843-1904) of Dodge Center, joined his father in the practice of medicine in that town. Their professional notices are to be found in various issues of the *Dodge Center Record* in 1896, 1897 and 1898. As it had the career of Dr. James A. Garver's son, death cut short young Ranson's career in 1899, four years after he had been graduated from the University of Minnesota College of Medicine and Surgery.

By December of 1896 Doctor Giere of Hayfield had decided to return to Madison,[159] but before he left he asked **Dr. Lewis L. Mayland** (1871-), who at the time was associated with **Dr. Joseph A. Gates** (1870-1922) of Kenyon, to take his place.[160] Doctor Mayland agreed, and by the end of December he was well established in Hayfield.[161]

In August of 1897 **Dr. Elmer Ellsworth Harrison** (1866-1934), who had been graduated from the University of Minnesota College of Medicine and Surgery in June of that year, settled in West Concord. A native of Freeborn County, Doctor Harrison stayed in West Concord until 1933. He died in Worthington in 1934.

In March of 1898 two physicians left Dodge County. The first was **Dr. William M. Edgerton** (1870-1939) of Claremont, who moved to Faulkton, South Dakota. The second was **Dr. Charles Osborne Wright** (1864-) of Kasson, who went to New York City to obtain additional training at the New York Polyclinic Medical School and Hospital.[162] Doctor Wright soon returned to Kasson, but Doctor Edgerton never returned to Dodge County to practice medicine.

In April of 1898 **Dr. Charles S. Bigelow** (1845-1931) of Dodge Center decided to open an office in Claremont, his original location in Dodge County. He moved to that town, and in July of 1898 he brought **Dr. William Henry**

Tefft (1873-1938), who had just been graduated from the University of Michigan Department of Medicine and Surgery, to maintain his practice at Dodge Center.[163]

Dr. Mary Eliza Ranson (Mrs. A. Franklin Strickler) (1873-), a daughter of Dr. Stephen W. Ranson of Dodge Center, was graduated from the University of Minnesota College of Medicine and Surgery in 1898, and on June 16, 1898, was licensed to practice medicine in Minnesota.[40] She came back to Dodge Center to practice medicine with her father for a while, and remained in that town until February of 1899.

In September of 1898 Dr. Charles Osborne Wright of Kasson, who had returned from New York City, left Kasson to locate in Luverne,[164] where he is at the present writing (1943).

In the same month **Dr. James McPeek** (1852-1922), a native of Byron in Olmsted County, came to Kasson.[165] He stayed there for only a few months, leaving in March of 1899.

In November of 1898 a young man who had just been graduated from the old Keokuk Medical College in Iowa came to Hayfield. He was **Dr. N. Clausen Thimsen** (1871-), son of Steele County pioneers well known in Dodge County. He stayed in Hayfield until 1913.

In February of 1899 **Dr. Mary Eliza Ranson** (Mrs. A. Franklin Strickler) of Dodge Center accepted the post of junior physician at the Saint Peter State Hospital.[166] She never practiced medicine again in Dodge County.

In the spring of 1899 Doctor Tefft moved from Dodge Center to Claremont, and Dr. Charles S. Bigelow returned from Claremont to Dodge Center. In August **Dr. Anthony N. Sorenson** (1875-1901), a native of Claremont, came to Hayfield to take the place of Dr. Lewis L. Mayland (1871-), who was planning to leave Hayfield to go to Red Wing.[167] But Doctor Sorenson did not remain long in Hayfield. He went to South Dakota, as will be shown, where he was stricken with a fatal illness.

In November of 1899 a physician visited Kasson who did not stay there long. He was **Dr. Edward H. Kerkhoff** (1872-1918), a graduate of the Hamline University Medical Department in 1899, who had been licensed to practice medicine in Minnesota on June 16, 1898.[40] It is believed that Doctor Kerkhoff next went to Plainview in Wabasha County;[168] but he eventually located in Pierz, where he died in 1918.

Dr. Charles S. Bigelow had returned to Dodge Center from Claremont in the spring of 1899. On December 20, 1899, Doctor Tefft returned to the home of his parents in Belmont, New York, from Claremont.[169]

The chronologic portion of the present study ends with the departure of Doctor Tefft in the last month of the year 1899. It began with the coming of Dr. Josiah N. Dartt (1824-1874) to the county in the year 1854, and thus embraces a span of only about forty-five years. Almost the same number of years intervene between the departure of Doctor Tefft in 1899 and the present (1943), but the task of setting forth the history of medicine in Dodge County from 1900 onward awaits other hands.

An account of the history of the Dodge County Medical Society from its foundation in 1869 until its extinction in 1934, and short biographic sketches of certain physicians who practiced in Dodge County from 1854 to 1900, will conclude the present essay.

The Dodge County Medical Society

By the latter half of the nineteenth century Minnesota was well represented by various medical societies, which were, of course, established at greatly dif-

ferent times. A territorial organization, the Minnesota Medical Society, was founded in July of 1853, as Hamilton[170] has shown. The village of Saint Anthony had one in the same year,[171] and the city of Saint Paul had one in 1860.[172] A medical society was founded in the city of Winona in 1866, and the Winona County Medical Society was formed in 1869,[173] as were also the Wabasha County Medical Society[174] and the Goodhue County Medical Society.[175] The Dakota County Medical Society was initiated in 1870,[176] and the Brown County Medical Society was organized in 1895.[177] The Rice County Medical Society was founded in 1885, although another group may have antedated this body.[178] Steele County, although immediately adjacent to Dodge County, did not have a medical society until 1894,[179] and when one was organized, its first president was a former eclectic[54] and its first treasurer was a former homeopath.[180]

In view of the varying years in which the foregoing societies were established in cities or counties not far removed from Dodge County, the date of founding of the Dodge County Medical Society is noteworthy in that within slightly more than ten years after the county itself had been organized as a unit of the state, physicians within the county had made an attempt to organize themselves. The society seems to have been formed in September of 1869. In a newspaper account[33] of the event it was noted that: "The M.D.'s of Mantorville have organized a Medical Association called the Dodge County Medical Association. . . ."

It is not easy to trace the history of this pioneer medical organization. In section 2 of article 3 of the constitution[181] of the Minnesota State Medical Society it was provided that:

> SEC. 2. The officers of the county or district societies are required to report each year to the Recording Secretary of the State Medical Society, the names of all their members, to serve as a basis for the medical statistics of the State, and no physician not in good standing in his own county or district society, shall be admitted as a member of the State Medical Society.

If such reports actually had been made and preserved, it would be a simple task to chart the course of any county or district medical society in the state, but evidence indicates that few if any secretaries of county or district groups made such reports. At the eighth annual session of the Minnesota State Medical Society at Saint Paul in 1876 the president, Dr. Jacob H. Stewart[182] (1829-1883), announced that only one county society (presumably the Fillmore County Medical Society) had complied with the aforementioned provision. It may be, then, that the Dodge County Medical Society maintained its function for some years as a county organization only, without affiliating itself with the state society. The Dodge County Medical Society was still in existence in 1881, when it was disclosed that "The Dodge County Medical Society will meet at the Kinney House, Dodge Center, on Tuesday, March 15, at 1:00 p.m.—H. M. Sargent, M.D., Sec'y."[183] About a year later the society met at the office of Doctor Garver in Dodge Center.[184] At this meeting Doctor Garver was elected president for the ensuing year, and Dr. H. M. Sargent was reëlected secretary. Doctor Sargent and Dr. Christopher Porter Gibson (1848-1933) of Concord were appointed to be a committee to draft a constitution and formulate a fee bill, and Dr. Stephen W. Ranson (1843-1904) of Dodge Center and Dr. J. Clark Bliss (1846-?), then of Mantorville, were elected delegates from the Dodge County Medical Society to the thirty-third annual session of the American Medical Association which was to be held at Saint Paul on June 6, 7, 8 and 9, 1882. It is of record[185] that both Doctor Ranson and Doctor Bliss

attended this convention. Dr. John Jacob Everhard (1829-1908) of Kasson also attended it as a visitor, and Dr. Jasper Bedient (1838-1920) of Kasson was present as a permanent member of the American Medical Association.[185]

By the year 1890 the Dodge County Medical Society apparently was moribund, for in the nineties Dodge County physicians as a rule attended meetings of the Olmsted County Medical Society. Moreover, the Southern Minnesota Medical Association was organized at Winona in July of 1892, with Dr. Franklin Staples (1833-1904) of Winona as the first president,[186] and several Dodge County physicians were accustomed to attend its sessions.* Dr. Stephen W. Ranson (1843-1904) of Dodge Center was elected president of this association in 1897.

On May 24, 1905, at Dodge Center, the Dodge County Medical Society was reorganized. All the physicians in the county were present, and at a later meeting (on June 14, 1905) the constitution and by-laws recommended by the American Medical Association were adopted. In 1906, it is known,[187] the society held meetings regularly, and had an annual meeting in May of that year. Dr. Amos L. Baker (1852-1932) of Kasson was president, and Dr. Elmer E. Harrison (1866-1934) of West Concord was secretary. Among members were Dr. Charles Sumner Bigelow (1845-1931) of Dodge Center, Dr. Frank French Clifford (1863-) of West Concord, Dr. N. Clausen Thimsen (1871-) of Hayfield, and Dr. Osmon F. Way (1858-1936) of Claremont. Other physicians were members at this time, but they have not figured previously in this chronicle and hence need not be mentioned in this connection.

The Dodge County Medical Society after the reorganization of 1905 maintained itself with vigor until the year 1933. On July 5, 1933, members of the Olmsted-Houston-Fillmore County Medical Society, according to the present secretary,[188] voted to accept the application of the Dodge County Medical Society to affiliate itself with the larger society. The organization is now known as the Olmsted-Houston-Fillmore-Dodge County Medical Society, and the charter which this four-county group received from the Minnesota State Medical Association bears the date July 15, 1934.

Certain Early Dodge County Physicians

Dr. Josiah R. Dartt (1824-1874) was, so far as is known, the first physician to settle in Dodge County permanently. After his return from the War of the Rebellion he practiced medicine only infrequently, if at all. This pioneer settler and physician was born in Weatherfield, Windsor County, Vermont, on September 11, 1824, the fifth of seven children of Erastus Dartt (1792-1851) and Rebecca Jackman Dartt (1792-1877). According to the *Dodge County Republican*,[56] Doctor Dartt remained in his native town of Weatherfield until he was twenty-two years old; he then removed to Groton, Massachusetts, where he was married. He lived in Groton for about three years; then journeyed westward to Kingston in Marquette County, Wisconsin. There he studied medicine under a preceptor, and attended the Chicago Medical College, from which he was graduated in about 1853 as a Doctor of Medicine. In one source[11] it was said that he settled in Dodge County in the summer of 1854; in another[5] it was said that he came to the county in the fall of 1854; in still another it was said that he did not arrive until May 15, 1855.[189] Lord[1] said simply that Doctor Dartt came to Dodge County in 1855.

*As late as 1903 Dr. Carlos Lord Chambers (1858-1904) of Kasson and Dr. Amos L. Baker (1852-1932) of Kasson were members of the Olmsted County Medical Society. Dr. Stephen W. Ranson (1843-1904) of Dodge Center was not a member of any county medical society, but was, on the other hand, a member of the Minnesota State Medical Association.

His professional card:

DR. J. R. DARTT, M.D.
Physician and Surgeon
Office at Drug Store
Mantorville, M.T.

is to be found in several issues of the first volume of the *Mantorville Express* (1858), and in one issue[17] in particular is contained a notice of dissolution of a partnership between Doctor Dartt and W. L. Bennett. They had operated a drug store in Mantorville together; doubtless it was the one referred to in the aforementioned professional card.

At various times before the War of the Rebellion Doctor Dartt explored the reaches of Southern Minnesota, once (1858) going as far as what later (1861) became the Territory of Dakota. When the war broke out, he sold his store to Benjamin S. Cook (1833-1905), who had opened a general store at Concord in 1856, with Dr. T. G. Ingraham. Doctor Dartt then became a private soldier in Company A of the Fifth Minnesota Regiment of Volunteers. In May of 1862 he was commissioned a captain of infantry, but resigned this commission on April 12, 1863, because of ill health.[190] He returned to Dodge County to devote his remaining years to his 160-acre farm near Mantorville, where he raised hops, apparently not very successfully.[1] In 1869 he became captain of a company of militia recruited in or near Mantorville,[1] and was chairman of the town board of Mantorville in the years 1861, 1864, 1867, 1870 and 1871.[11]

Doctor Dartt died at Mantorville on September 11, 1874, at the comparatively early age of fifty years. His esteem in the county and surrounding country is reflected in the fact that at least 1,200 persons attended the funeral;[191] they constituted a throng so huge that the sashes were removed from the windows of the Methodist Church so that the multitudes outside could hear the service, and the officiating clergyman spoke from one of the windows of the church instead of from the pulpit.[1]

"He was a man with whom friendship strengthened with acquaintance," it was said[1] of him after his death, "and those who knew him best are those by whom he will be most missed. During his last sickness (which was very severe) he received all the attention and relief it was possible for human kindness to bestow, and in his death the community loses one of its most prominent and respected citizens."

Lord[1] said that "Doctor Dartt was a man of more than ordinary ability and was decidedly popular among all classes of people."

Dr. James Mansfield Ryder (1822-1900) was born in Clyde, New York, in September of 1822.[192] He came to Milton Township in Dodge County in 1855, as has been said, where he farmed and practiced medicine among his neighbors until about 1889, when he moved to Buffalo in Wright County.[142] From Wright County he went to California, where he lived for about a year. He finally moved to Oregon, and he died at McCoy, Oregon, on May 29, 1900, of apoplexy.[192] In Oregon he was known affectionately as "Uncle Tim" Ryder, and it was said that his patients usually came to his house for treatment. Since he practiced homeopathic medicine in Oregon,[192] it is assumed that such was his inclination while he practiced in Dodge County. He was, however, never licensed to practice medicine in Minnesota,[40] and the executive secretary[193] of the Board of Medical Examiners of the State of Oregon has reported that he was never licensed to practice medicine in that state.

Dr. Staunton B. Kendall (1808-1897) was born in Rutland, Vermont, on March 17, 1808.[25] When he was about twenty years old his family moved to Canton, Pennsylvania, where the young man studied medicine, probably under a preceptor. In the year 1856 he came to Dodge County, where he pre-empted a farm near Ashland and practiced homeopathic medicine among his neighbors. He was elected first assessor of Ashland Township in 1858,[5] but left Dodge County in 1862 and soon settled in Byron in Olmsted County, where he lived until his death. At some date now not known he was married to Miss Emily Fairbanks, who lived near Dodge Center. In Byron Doctor Kendall erected the first hotel in the village, and he dispensed his own drugs and practiced medicine there for years. On May 14, 1872, Doctor Kendall was elected a member of the Southern Minnesota Homeopathic Medical Society,[25] and he was licensed to practice medicine in Minnesota on November 28, 1883, by exemption. He was said to have been a good friend of Dr. William W. Mayo (1819-1911) of Rochester, even though the two men embraced opposing systems of medicine.[25] Doctor Kendall died on November 9, 1897, and was buried in the cemetery at Byron.[25]

Dr. William P. Miller (1806-1873) was born on June 17, 1806, and it is possible that he was born in Cincinnati, or at least in Hamilton County, Ohio, where he may have practiced medicine for a while. It is also thought that before he came to the Territory of Minnesota he lived in Indiana. Doctor Miller, with Doctor Garver, came to what is now Wasioja in Dodge County in the spring of 1856, and there he pre-empted land and built the first store in the village,* in which he sold a few common drugs and handled general merchandise. In September of 1868 he was appointed postmaster at Wasioja,[194] despite the fact that he was an active Democrat and that the administration of President Andrew Johnson (1808-1875) was, nominally at least, Republican.† Doctor Miller continued to operate his small store and to practice medicine at Wasioja until the year 1870. In January of 1870 he had journeyed to Saint Paul, where a Democratic convention was in progress. He was suddenly stricken with paralysis one night at his hotel in Saint Anthony. So severe was the affliction that he could not speak to those who sought to minister to him.[195] Papers found upon his person finally disclosed his identity, and a telegram was dispatched to his family in Wasioja. Doctor Garver and some of his family proceeded to Saint Anthony to bring the aged man home. He withstood the trip, but never recovered his faculties. Thereafter he was confined to his bed in Wasioja, speechless and helpless, where he was groomed and cared for by members of his family. He died on May 19, 1873, at Wasioja, and was buried in the Wildwood Cemetery at Wasioja with full Masonic honors.[196]

Doctor Miller was a spare man, grey-haired, and of average size. He customarily wore a goatee. Of his medical ability not much is known, and it is not known from what medical college he was graduated, or whether he was graduated from any school, but he practiced homeopathic medicine. It is probable that Doctor Miller was not nearly so well trained in medicine as his brother-in-law, Doctor Garver, although it would be impossible to verify such a statement now, some seventy years after the death of Doctor Miller. Doctor Miller's grandson, Dr. Victor I. Miller (1875-), is now (1943) a specialist in diseases of the ear, eye, nose and throat in the Mankato Clinic.

*The store, much altered, is still standing (1943) in Wasioja.
†He had been nominated for the vice presidency in 1864 as a War Democrat, on the Republican ticket. In 1874 he was elected a United States senator from Tennessee as a Democrat.

(To be continued in the September issue)

President's Letter

AN OPEN LETTER TO DR. FISHBEIN

July 21, 1943

Dr. Morris Fishbein,
Editor, Journal of the American Medical
Association, Chicago, Illinois
Dear Doctor Fishbein:

In the editorial entitled "Doctors in Congress" which appeared in the *Journal of the American Medical Association* of June 26, the Editor has given me the doubtful honor of quoting from my presidential address delivered at the annual banquet of the Minnesota State Medical Association in May. The honor is a doubtful one because the excerpt, standing by itself, misrepresents my argument and conclusion and creates an impression which is diametrically opposed to the tenor and purport of the address as a whole. I am sure that I need not point out to you the unfairness of such garbled quotation for, doubtless, you yourself also have suffered from similar improper and unwarranted use of partial quotations from statements that you have made.

My astonishment was increased when I learned, later, that the same editorial had been released in its entirety to the press of the country in the *American Medical Association News*. I am not unwilling to be properly quoted in either the *Journal* or the *Association News*, and the statements which your editorial quotes were in no way private or privileged, but I seriously object to the use of the partial, and therefore wholly misleading quotation in the original editorial and its dissemination to the news services.

In my address I purposely refrained from relating the details of the controversy at the Minnesota State Capitol this spring, because they were already familiar to many of our members. The quotation that you used in your editorial would lead an uninformed person to conclude that the Minnesota State Medical Association had been defeated and discredited. The exact opposite to that conclusion is true. The controversy arose over an appointment in which the principle of the free choice of physician by the workman-patient was involved. The Association won its contention for such free choice and it received support in the position that it took, from all elements in the community including editorial writers and leaders of organized labor, and the great majority of the members of the Minnesota State Legislature.

The use of the garbled quotation in the editorial had the effect, whether intentional or not on the part of the Editor, of discounting the proposal for better representation of the AMA in Washington through the newly-created Council on Medical Service. Opposition to that proposal was to be expected, but in spite of it the amendment to the By-Laws of the Association, providing for such Council was adopted without a single dissenting vote. The releasing of the editorial to the public press at this time is, therefore, ill-timed and unfortunate, and can only have the effect of discrediting and obstructing this Council, even before it is fairly organized.

It seems to me that the use of the quotation, in the manner referred to above, was highly improper for it misrepresented not only my own views (a matter of small importance) but also the position of one of the constituent bodies of the AMA, viz. the Minnesota State Medical Association.

Yours very truly,

Stephen D. Boyd

President, Minnesota State Medical Association

Editorial

CARL B. DRAKE, M.D., *Editor;* GEORGE EARL, M.D., HENRY L. ULRICH, M.D., *Associate Editors*

MATERNITY AND INFANT CARE FOR WIVES AND SICK INFANTS OF ENLISTED MEN

ACCORDING to the announcement mailed to Minnesota physicians last month, federal funds have been made available to the United States Children's Bureau for the obstetrical care of the wives and sick infants of enlisted men of the fourth, fifth, sixth and seventh grades.

This financial assistance is being distributed through the Division of Child Hygiene of the Minnesota Department of Health located on the University Campus.

Confusion resulted when it was first announced last year that such federal funds were available. However, Minnesota never qualified to receive the assistance because its plan of administering the funds was not approved and before this could be adjusted the funds were exhausted.

Effective July 6, 1943, the federal government will pay physicians and hospitals for obstetric care and for the care of sick infants of enlisted men irrespective of their financial status. Forms, which may be obtained from the Division of Child Hygiene, should be filled out and authority obtained for financial assistance from the government of these individuals. This is a service which enlisted men obtain during peacetime, and as it cannot be provided by army personnel at present this method has been devised.

THE WAGNER-MURRAY BILL

THE Wagner-Murray Bill submitted to the Senate June 3, 1943, is an almost incredible attempt to substitute state medicine for private practice by the inclusion of the medical and hospital care of some 110,000,000 of our population in the bill providing social security on a broad scale similar to the Beveridge plan in Britain.

In brief, employes are to be taxed six per cent of their wages, employers another six per cent of the payroll, every self-employed individual seven per cent on the market value of his services up to $3,000 per year and government employes will pay three and one-half per cent of their salaries. Of the estimated $12,000,000,000 so raised, some $3,000,000,000 will be allocated to The Medical Care and Hospitalization Account, the expenditure of which will be under the direction of the **Surgeon General** of the United States Public Health Service. He is authorized and directed to take all necessary and practical steps to provide medical and hospital care for the people of the country, to designate the individuals or groups of physicians and the hospitals which shall furnish the service and to pay for such service. A National Advisory Medical and Hospital Council of sixteen members shall be appointed by the **Surgeon General** to act in an advisory capacity, but without authority. Any qualified physician can furnish medical service according to rules presented by the **Surgeon General.** Every individual shall be permitted to select his own doctor in accordance with rules presented by the **Surgeon General.** The **Surgeon General** shall publish the names of general practitioners who have agreed to furnish service and shall designate the specialists. Fee schedules are to be approved by the **Surgeon General,** who shall arrange for part-time or whole-time service and the **Surgeon General** may prescribe the maximum number of patients for each physician.

In fact if this Bill 1161 is passed, private practice in this country will be at an end and one man, the **Surgeon General** of the Public Health Service, will have a czar's direction of the medical and hospital care of our people and the expenditure of a sum almost equal to the total yearly revenue of the Federal Government in the nineteen-twenties.

Will Congress give serious consideration to this bill which would make medical care a governmental function and would eliminate private practice as we know it? We think not. And yet, during the stress of war the unexpected might happen.

There are certain individuals in our body

politic who are bent on socializing all activities in our country. They are prominent in government circles in Washington. They would destroy private industry and incentives which have made the standard of living in the United States the highest in the world.

The American physician is an individualist. He studied medicine because he wanted to become a physician and in many cases did so in spite of financial handicaps. He values his medical degree because of the effort involved in obtaining it. A physician's practice is competitive, and as a rule the most efficient physician is the most successful. In spite of acknowledged deficiencies in our medical system, our competitive system supplies the best medical care in the world, far superior to that in most foreign countries with socialized medicine.

The question arises whether the present provision whereby all medical students are put in uniform, become members of the reserve and have their expenses paid by the government in addition to monthly pay, is a wartime necessity. There has never been a dearth of medical students; the medical schools for years having had more applicants than they could possibly accommodate. It is true that being in uniform signifies that the medical student is doing his part in the present conflict and for this reason, as well as for financial ones, it is desirable for the student. Is a medical student who, at no financial outlay on his part or that of his family, undertakes the study of medicine, as likely to put forth as much effort to obtain his degree as though he had paid for the training? Upon graduation will he not be psychologically conditioned to accept further governmental pay as a doctor and avoid the competition of private practice?

During a war governmental powers must be increased and many phases of life must be regulated. Taking over by the government of the medical care of its citizens is not a war emergency, although it would appear that advantage is being taken of the present crisis to try to put through this legislation at this time. Possibly the main reason for the presentation of this bill at this time is to further public discussion.

Discuss the bill we shall. Is there any reason for believing that the health of our citizens will be improved if all medical care is administered by a czar in Washington with control of medical personnel and fees, hospitals and hospital rates, number of patients a physician may have, et cetera? Such an undertaking would incidentally require an enormous expansion of the Public Health Service, an enormous administrative expense, the throttling of individual initiative and a lower grade of medical service.

The public is submitting to regulation of many phases of life by Washington bureaus because of war necessity. The typical American does not relish unnecessary regulation and it is certain that after the war there will be a reaction which will lead to the abolition of unnecessary bureaucratic control. It should not be forgotten that our government was formed by the people to make certain needed regulations for the common good, not to interfere with legitimate activities of citizens and not to act as a dispenser of benefits—medical care included.

Congress is in recess at present. The present addresses of our Senators and Representatives are given below and members are urged to write and express their opposition to the Wagner-Murray Bill.

Senators

Joseph H. Ball, 2119 Iglehart Avenue, Saint Paul, Minnesota

Henrik Shipstead, Miltona, Minnesota

Representatives

August H. Andresen, Red Wing, Minnesota

J. P. O'Hara, Glencoe, Minnesota

Richard P. Gale, Mound, Minnesota

Melvin J. Maas, House of Representatives, Washington, D. C.

Walter H. Judd, 4626 Emerson Avenue South, Minneapolis, Minnesota

Harold Knutson, Manhattan Beach, Minnesota.

H. Carl Andersen, Tyler, Minnesota

Wm. A. Pittenger, 2826 East Second Street, Duluth, Minnesota.

Harold C. Hagen, Crookston, Minnesota

ADDITIONAL FOOD FOR PATIENTS

ACCORDING to regulations of the Food Rationing Board individuals are allowed additional food upon certification by their physicians. To most physicians this is a new and complicated task for they have left the food question and the

handling of coupons to their wives and have not acquainted themselves with the details of regulations. As a result they are often at a loss to know even approximately how much additional food a patient may require. Some physicians in desperation have signed the requisition form and have allowed their patients to fill in the amounts they desired. This has led to the request for additional amounts of various items such as in one instance eighty pounds of beef, eighty pounds of mutton, ninety pounds of bacon, sixty pounds of cheese for a two months period for one person which was absurdedly excessive. Such requisitions rather reflect on the capacity of the profession to certify for food increases for patients. Also there is nothing to prevent the patient from adding to the amounts specified by the doctor inasmuch as the form is returned to the patient for presentation to the Board.

The present rationing of food permits plenty of food in variety and amount for the average individual whether in sedentary occupation or one requiring great muscular activity. While rationing may and generally does require a change in dietary habits only a limited number of specified foods are rationed and one has a wide variety of unrationed foods from which to choose.

As a matter of fact there are very few patients who actually require additional foods.

The diet of the diabetic today much more nearly approximates the normal than it did before the advent of insulin. Additional protein and fat can be obtained in most cases from nonrationed foods such as fish, eggs, cream, cottage cheese and certain oils. Cream cheese too requires few stamps. A certain amount of protein is derived also from milk, bread and cereals which are not rationed.

The same considerations would seem to apply to the underweight and anemic patients.

In summer when fresh vegetables and fruits are abundant there is less need for additional food for patients. In winter when frozen and canned fruits and vegetables must be largely substituted for the fresh, additional coupons are more likely to be needed. Physicians should remember that a can of either fruit or vegetables will supply more than one portion to a patient.

There is one situation in which a patient, a diabetic for instance, needs additional coupons. This is when the patient lives alone or with one other person and the coupons allotted are not sufficient to make substantial purchases at one time.

An occasional patient may therefore require certification by the physician. The necessity for changing dietary habits is not sufficient reason for seeking the aid of the physician. All of us may have to make considerably more sacrifices dietary and otherwise before this crisis is over. A few words of explanation to the patient as to the substitution of nonrationed foods should clear up the supposed dilemma with which he may honestly believe himself confronted.

Medical and Surgical Relief

More than $59,000 of medical and surgical supplies were donated during the past six months by the Medical and Surgical Relief Committee to the U. S. Navy, the U. S. Coast Guard, the armed forces of our Allies and to welfare groups here and abroad. This brings the total value of shipments up to $551,699.24 since the Committee was launched three years ago.

The detailed semi-annual review presented to the executive committee at headquarters at 420 Lexington Avenue, reported that over 500 portable emergency medical kits were furnished by the Committee to Navy subchasers, destroyer-escorts and Coast Guard patrol-boats. Specially designed for the small sub-hunting craft, the patrol-boat and sub-chaser kit is equipped with drugs and instruments to give immediate treatment to casualties or accidents. The medical kits are consigned through the 13 U. S. Naval Districts or are sent directly to the ships' commanding officers.

Sixty-three emergency medical field sets, consisting of two large cases containing antiseptics, bandages, drugs and an instrument roll, were distributed by the Committee among Navy and Coast Guard units, to the War Shipping Administration, the British West Indies, and to several civilian defense stations. (This makes a total of 312 field sets.)

The French forces in North Africa and Little Norway in Canada received the bulk of the Medical and Surgical Relief Committee's foreign donations for the past half year, according to the semi-annual report. The crates of operating sets, medical kits and other supplies for the North African French are dispensed by the Fighting French Corps, the French Red Cross and the American Friends Service in Libya.

In July, 1940, the Medical and Surgical Relief Committee was organized to gather supplies for understocked emergency stations and field hospitals crowded with bomb victims in Great Britain. As the war spread, the Committee's scope was increased to answer appeals for help from Greece, Russia, China, the Fighting French, the Royal Norwegians, missionary doctors in Africa and India, and, since our entry into the war, from the United States. Beginning with a handful of philanthropic doctors in New York City, the Committee has grown to an operating membership of over 500 doctors in forty-four states.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

THE NEW COUNCIL ON MEDICAL SERVICES: ITS DUTIES AND POWERS

A new Council on Medical Service and Public Relations was created by the House of Delegates of the American Medical Association in June. This Council was endowed with complete authority to conduct the public relations of the association, including the authority to establish a listening post for medicine in Washington.

The report of the Board of Trustees recommending creation of this autonomous council was a consolidation of favorable reports from two reference committees of the House. These committees had before them for consideration no less than eight resolutions asking for an independent committee or council of this character and no reservations as to the powers of the projected agency were attached, either to the committee recommendations or to the resolution as finally passed.

It is true that an amendment calling specifically for the creation of a permanent office in Washington was subsequently proposed by the Ohio delegates. This amendment was designed to support the Council in carrying out the obvious will of the delegates. It was rejected on the advice of Dr. Thomas A. McGoldrick, chairman of the Reference Committee on Medical Legislation and Public Relations, on the ground, not that the amendment itself was undesirable, but that the original motion had already invested the Council with full authority to act, including authority to establish any type of permanent representation in Washington which might seem best fitted to its purposes.

Delegates Amazed

For that reason the editorial attitude of the *Journal of the American Medical Association*, expressed in two subsequent editorials, has caused quite general amazement and consternation.

Is it possible that the editor or the administration of the AMA wishes to dodge or circumvent the clear will of the House of Delegates on this matter?

If so, is there a possibility that the new Council which, at this writing, has still to hold its first organization meeting, will be unduly influenced by the obstructive policy expressed in these editorials? Is it conceivable, in spite of the constructive action taken in Chicago, that the great body of physicians of the United States will continue to struggle along with outworn public contacts and methods wholly unsuited to the needs of the times? The answers to these questions are important enough to demand serious consideration.

Took Active Part

The letter published below was addressed by Dr. W. L. Burnap of Fergus Falls, chairman of the Council of the Minnesota State Medical Association, to Dr. Morris Fishbein, editor of the *Journal of the American Medical Association*. It should be recalled that Dr. Burnap was a leader in the nation-wide movement for better public representation of the medical profession. He is 1943 president of the National Conference on Medical Service which endorsed a resolution directed to that end at its February meeting, and he took an active part in drawing up and presenting one of the widely quoted resolutions submitted to the AMA delegates at Chicago. The letter conveys Dr. Burnap's reaction to the two editorials, the first of which, published June 19, declared categorically and incomprehensibly that the delegates had refused to approve the establishment of an information headquarters for the association in Washington. The second, which appeared under the title "Doctors in Congress" on June 26, discounted the need for any better source than now exists for public information on

medicine and warned of the danger involved in active participation by physicians in public affairs.

Issue Misconstrued

By way of illustration, there were two misquotations from Minnesota physicians in the second editorial (perhaps because Minnesota was generally recognized as one of the rallying points for delegates who demanded a change of policy in Chicago). Misquotation, in this case, did not, of course, consist in actual change in wording. It consisted in quoting out of context, a maneuver which is even more likely to becloud the issue.

One of the physicians quoted was the president of the Minnesota State Medical Association, Dr. Stephen H. Baxter of Minneapolis, whose personal letter addressed to Dr. Fishbein and requesting an explanation is printed on the President's Page in this issue. The other was Dr. Walter Judd of Minnesota, congressman from the Fifth District. The excerpts used were from addresses made by both at the annual banquet of the Minnesota Association.

Dr. Burnap's letter follows:

July 17, 1943

Morris Fishbein, M.D.
American Medical Association
535 North Dearborn Street
Chicago, Illinois

My dear Dr. Fishbein:

I note in your editorial in the *AMA Journal,* June 19, 1943, that among other statements you say, "The House of Delegates voted by a large majority against the establishment of a Washington office." I am interested in knowing when that vote was taken. I have taken considerable pains reviewing the action of the House of Delegates, and as far as I or a number whom I have consulted can ascertain, no such vote was ever taken. It is my feeling and that of those with whom I have had an opportunity to converse, that the editor of the *AMA Journal* should confine himself to facts and not allow his personal prejudices to color his interpretations. If we are mistaken in this matter, we will be pleased to be set aright. If you are wrong, we would consider it a manly act to correct yourself.

I will also state that in another editorial on June 26, you allowed your personal feelings to color your interpretation of the remarks of Stephen H. Baxter, President of the Minnesota State Medical Association, and the results of our controversy with Governor Stassen. It is true that a certain Senator did, in the heat of battle, suggest that an investigation be made of the activities of the representatives of our Association in the Capitol. However, this resolution was dropped, and the Senator who introduced it apologized profusely to Rosell, Brist, and Sogge, and admitted that he alone was the loser in the matter.

The controversy with Governor Stassen closed with a complete victory of the Minnesota State Medical Association over two-thirds of the Senators standing loyally by. Nothing that has happened in Minnesota has so added to the high standing of the medical profession of Minnesota or added so many friends as this controversy with Governor Stassen, because it was fought in the interests of the people against political maneuvers, and is so interpreted by those who are informed in the matter.

Yours very truly,
W. L. BURNAP, M.D.

As Dr. Burnap so forcefully points out, the contest over the appointment of Mr. N. H. Debel to the Industrial Commission closed with a complete victory for the medical association and the editor of the *Journal* seems, therefore, to be laboring under some misconceptions in so far as that episode is concerned. It is true that the association encountered vigorous opposition. It is true that there was a demand for an investigation and the Governor, who sustained the first defeat in his phenomenal career, was quite naturally indignant. Such evidences of opposition are the normal and not unwholesome sequelae of active participation in public affairs.

Cited by themselves, as Dr. Burnap indicates in his letter, they give a wholly false picture of the situation in Minnesota. They do not convey the overwhelming and heartening support received by the association from the general public, from the newspapers and from the sections most involved in dealing with the Industrial Commission, the working men and their organizations. Evidence of the gratitude of labor appeared in the communication of Gottfrid Lindsten of the Brotherhood of Railroad Trainmen published in the July issue of MINNESOTA MEDICINE. The attitude of the press is well conveyed in an editorial from the *New Ulm Daily Journal* reprinted elsewhere in this section.

No Danger To Medicine

Physicians of Minnesota were fighting for a sound principle and their courageous stand brought to their support all men of good will, in and out of the state government, with the exception of those whom political divisions accidentally lined up with the opposition.

It should be pointed out again that the hazards

of such action do not lie at all in the possible involvement of physicians in public legislative battles. They lie rather in timidity, in compromise with bad counsel, in obstruction and inaction. Surely there is no danger to medicine in the honest and vigorous protection of sound standards of medical practice nor in the resolute championing of the rights of the sick.

Seven Doctors

The quotation from Dr. Judd to the general effect that there are now seven doctors in Congress seems equally misapplied.

It would appear from the AMA editorial that Congress, having seven doctors in its elected membership, needs no outside instruction on medical matters. If seven doctors of medicine cannot keep Congress on the right path as regards health and medicine, then Congress is simply not susceptible to instruction, according to the editorial, and what could any agency representing the profession outside of Congress hope to accomplish? The question is put, of course, by implication.

The answer is obvious to anyone who has had any practical experience with the legislative process, which it is quite apparent the writer of the editorial has not. Even in a state law-making body the task of watching the multitudinous bills introduced at each session is a full-time job. To follow those which in any way affect medicine or the public health through all the committees and all the vicissitudes of back-stage maneuvering requires the full knowledge and resourcefulness of experienced representatives. In the Congress the task is magnified many times. It is clearly absurd to expect such service from elected physicians who are representatives of all of the people in their districts, and whose interests must extend beyond matters of health or the welfare of their professional brethren.

They Went Home

It is certainly true that the Seventy-Eighth Congress will be better informed than usual about many matters connected with medicine and the public health because of the presence in that body of the dynamic and fearless young physician-congressman from Minnesota. Informing Congress about medicine is just one of many jobs for Dr. Judd, however, though the heroic fight he put up to remove the proviso in the appropriation bill permitting all licensed healers to participate in obstetrical programs under the Children's Bureau, shows how ready he is to do what he can to protect standards of medicine in the United States.

It happens that there is a pertinent reason why this very proviso was retained in the bill in spite of all Dr. Judd and two medical colleagues in the House could do to secure its removal. At the crucial moment, there was no one available on the spot to help them off-set the under-cover manipulations which finally prevailed. Representatives of organized medicine and of the public health officials who should have been watching at every step, were not only absent from the House but had left Washington, mistakenly believing the fight was won.

More Information Needed

Information provided to Washington agencies by the various bureaus in Chicago of the American Medical Association serves its own excellent purpose and should be encouraged. Nevertheless such bureaus are no substitute, in any sense whatever, for informed Washington representation, on the ground. That, at least, is the opinion of Dr. Judd, himself, expressed vigorously in the same banquet address to the Minnesota State Medical Association, though not quoted by the writer of the *Journal* editorial. Such an office would have information to give, of course, not only to Washington agencies and the Congress, but to the people back home.

It would also have the time, the experience and the definite commission to aid in guiding all legislation and regulations affecting medicine and the public health, in accordance with sound scientific principles.

It is the considered belief of the delegates who attended the June meeting of the House of Delegates of the American Medical Association that the new Council on Medical Service and Public Relations has all of the powers and authority necessary to establish such representation, if it sees fit, to aid in the war effort now and to assist in planning for health in the postwar period.

AN UNWARRANTED ATTACK*

We are sorry that Governor Stassen in his last days of office had to cover up his disappointment that two of his appointments had failed of confirmation by making a blistering attack upon the State Medical Association and the doctors of the state. The Medical Association was attacked simply because it refused to play politics or compromise an important principle.

What exasperated Governor Stassen was that a large and important group of men were so loyal to certain principles that they refused to bend to political expediency or party conniving. For years the State Medical Association has contended that a man should always have the right to select the doctor of his own choice and not be forced to have anyone pick the doctor some bureaucrat might think he ought to have. Faith in one's doctor sometimes is as important as the medicine or the treatment and the relationship between the patient and his doctor is almost the same as the relationship between a man and his minister, priest, or rabbi. Whether the bill is paid for by the state, the insurance company, or the county, the doctors have contended that this principle was fundamental.

One of the appointments Governor Stassen wanted was a man who had insisted that the industrial commission had the right to appoint the doctors and the patient had no voice in the matter. When this appointment was made, subject to confirmation by the senate, the doctors of the state rebelled and finally defeated it.

Mixed up in the deal was the appointment of Arthur Ramberg, Duluth labor leader who secured the labor endorsement of Stassen and Ball up at Duluth last summer. At the time there were ugly rumors of labor leaders with $200 bills in their pockets and out of it came the backing of Governor Stassen of Ramberg for railroad and warehouse commissioner. Ramberg didn't do any better in this race than he has done as an appointee to industrial commission, and hence the pique of Governor Stassen and his intemperate letter against the doctors.

In these days when strange forces are working to foist upon America new systems of government and new social reforms, it is encouraging to have a group of men like our Minnesota doctors who refuse to compromise principles or agree to cheap and tawdry political deals.

*From *The New Ulm Daily Journal*, April 22, 1943.

CONGRESSIONAL CONFERENCE

To no group are the issues now before Congress of more immediate and vital importance than to the medical profession. Upon the reaction of Senators and Congressmen to such issues as compulsory sickness insurance, now before Congress in the Wagner-Murray-Dingell bill, may depend the future of medicine for a generation in this country.

Obviously physicians must take advantage of every opportunity to be heard on this matter. It is therefore of the greatest possible interest to the medical profession that a conference in Minneapolis has been arranged between members of Congress from no less than five Northwest states and representative groups of citizens in this area.

These conferences will be held Monday, August 16, at the Radisson Hotel in Minneapolis and one of them, scheduled at 7:30 p.m., will be devoted exclusively to the problems and policies of medicine, dentistry and pharmacy with respect to national legislation and regulation. At least twenty-five Senators and Congressmen from Minnesota, Wisconsin, Iowa, North Dakota and South Dakota will be present. They have already indicated a desire to listen to what their constituents in these groups have to tell them, not to talk themselves. Representatives of all three key professional groups will have an unprecedented opportunity to present their views to a group of men whose combined vote might well decide their professional future.

Morning and afternoon conferences on the same day will be held with farmers and businessmen of this section. The evening program had not been completed at this writing but it is understood that qualified representatives of medicine, dentistry and pharmacy will be chosen as spokesmen and that the talks may be followed by discussion periods.

It should be remembered that the size and earnestness of the audience will be as impressive to the members of Congress as the actual opinions presented. It is therefore highly important that as many physicians as possible arrange to attend.

INDUSTRIAL HEALTH

Edited by the Committee on Industrial Health and Occupational Diseases

A. E. Wilcox, Minneapolis, Chairman

H. B. Allen, Austin
L. S. Arling, Minneapolis
Martin Aune, Minneapolis
Richard Bardon, Duluth
P. H. Bennion, Saint Paul
R. B. Bray, Biwabik
R. P. Caron, Minneapolis
T. H. Dickson, Saint Paul
T. A. Lowe, South Saint Paul
J. L. McLeod, Grand Rapids
C. M. Smith, Duluth
H. G. Wood, Rochester

INDUSTRIAL PHYSICIANS ARE NEEDED

The War Participation Committee of the American Medical Association recently requested the Council on Industrial Health to develop a plan which would enable the medical profession to contribute more directly to industrial health in small industrial plants. This step was taken in full realization of the dwindling numbers of physicians who would be available to supply this service.

The Council on Industrial Health has for some time recognized the need to establish more adequate medical programs in the smaller industrial plants which employ 85 per cent of the industrial population, but which have no full- or part-time medical services. The Council has been active in organizing committees on industrial health in state medical societies and in county societies in industrial areas. In suggesting the programs for these committees, the Council has emphasized the need to establish lists of physicians who would volunteer to enter this type of service, and has pointed out the need to provide opportunities for postgraduate training for those physicians who are so interested.

Profession To Be Surveyed

The procedure in establishing such a program is (1) to survey the profession to determine the names of physicians who are interested in industrial practice, and (2) to arrange conferences to work out details of the program with representatives of the State Procurement and Assignment Service, executive officers of the state medical society, the manufacturers' associations, representatives of labor, and the state committee on postgraduate education. The local manufacturers' associations would be informed that if a plant contemplates additional medical service, application for personnel should be made to the state committee on industrial health, or to county committees where such exist. These committees in turn would decide whether the need is valid and, if so, would submit the names of local physicians who are available.

The essential features of a plant medical service, according to programs outlined by the Council on Industrial Health of the American Medical Association and the American College of Surgeons, should include (1) the use of pre-employment and periodic physical examinations for proper placement of workers and the detection of remediable diseases; (2) the treatment of occupational diseases and injuries; (3) the reference of nonoccupational illness to the private physician; (4) the periodic inspection of the plant for environmental health hazards; (5) the maintenance of sickness records as a guide to the establishment of preventive measures; and (6) the health consultation and education of workers individually and as a group.

The physician should be engaged to spend a stipulated amount of time in the plant, the amount to be determined by the management and the physician. It has been suggested that as a minimum the physician should spend one hour a week in the plant per 100 workers.

Postgraduate Training Offered

Various types of postgraduate training in industrial hygiene have been offered in the different states. Indiana has offered a two-day conference on industrial health to be followed by a three weeks' intensive training period for those interested in entering industrial practice. The Michigan plans provide for three weeks of laboratory and practical experience. Iowa, Illinois, California, West Virginia, Massachusetts, and Ohio have presented a number of one-day institutes on industrial health in various cities throughout the states. The Long Island College of Medicine, Brooklyn, held a ten-day course of lectures and clinics in industrial medicine followed by a one-month industrial "internship."

(Continued on page 738)

Minneapolis Surgical Society

Meeting of March 4, 1943

President, Richard R. Cranmer, M.D., in the Chair
Secretary, R. F. McGandy, M.D.

SEED IMPLANTATION SKIN GRAFTS

H. O. McPHEETERS, M.D.
Minneapolis, Minnesota

The implantation of small bits of skin into granulation areas commonly spoken of as "seed implants" is a procedure not used as much and as often as it could and rightfully should be. This method is used for the covering of raw surfaces that are not adaptable to the use of the full or split thickness skin graft in which we would expect immediate healing and taking. It is for that reason that I feel it deserves more attention than it has had in the past.

The longer any raw surface is entirely devoid of skin and skin cells, the more fibrosis develops. Dr. S. L. Koch has taught and demonstrated that fibrosis continues until the granulation area is covered with epithelium or firm scar tissue. This fibrosis continues to draw the skin edges together and to pile up fibrous tissue elements in the granulating area, thus forming the dense scar bands we so often see in cases with total loss of skin with healing without skin grafting. We must have skin cells to proliferate in these areas.

The use of seed implants is particularly adaptable in case of large raw areas such as we see after injuries, burns, compound fractures, and varicose ulcers of the lower legs. It is often useless to do a dermatone split thickness graft in these cases due to the infection present but you can go right ahead and use your seed implants with impunity and can expect to have many islands of new skin growing in ten to twelve days.

If the case is a badly infected one with much edema and cellulitis then it is wise to put the patients to bed with the part in high elevation and apply hot wet packs widely over the area for a few days to get the general infection under control. It is also better to have the coarse watery granulation compressed to the firm red vascular type by the use of the fine mesh gauze and pressure bandages.

The case presented here is that of a man, aged fifty-two, a mechanic, in general good health. He developed a deep phlebitis in the right leg thirty-five years ago following pneumonia. Thirty-three years ago he developed an ulceration on the internal surface of the lower right leg and this has recurred off and on at intervals ever since. It has never been completely healed for the past six years. At the present time his leg is so bad that he has had to give up work entirely and is bedridden due to the severe pain in the leg when he tries to be about.

Examination showed the entire right extremity larger than the left. The lower leg was almost twice normal size. There was an extensive ulceration with irregular edges covering most of the lower half of the lower leg. The ulceration was deep and clearly through all the skin layers. Anteriorly it measured seven inches and extends about the left with only two and one half inches of the skin not destroyed. The ulcerating area was very necrotic and some gangrenous tissue was present. It was badly infected and there was much watery discharge from the surface. The entire lower leg was inflamed and showed a general cellulitis. The patient was toxic.

After six days in bed with hot wet packs from the toes to the groin, with the leg in high elevation, the infection was under control. A very tight Ace bandage was then applied over the fine meshed gauze dressing and the patient would walk real fast at intervals for one hour at a time every four hours, and the rest of the time he would be back in bed with a re-application of the hot packs. In this way the infection was controlled, the granulations were compressed flat and firm, and the circulation in the lower leg was markedly improved by the muscular activity. On the eighth day 240 seed implants were taken and buried into the granulation area. These were buried with a sliding technique into the granulations and about 1/32nd of an inch deep. They could be seen through the overlying granulations. During this implantation the lower leg was held high in the air being tied up so as to lessen the serous oozing from the raw area. *This is of much help.*

Tight compressive bandages were applied immediately postoperatively and the leg left in high elevation with hot packs for twenty-four hours, and then the patient resumed his walking for one hour every four hours. On the tenth day he went home and continued the same treatment from 7 a.m. to 11 p.m. On the fifteenth day the area was dressed daily with a bland ointment but otherwise the same. The entire area was healed and the patient returned six weeks from the date I first saw him.

The patient will, in all probability, have to wear the supportive bandage all his life. He must be careful to avoid trauma and injuries to the leg as it cannot survive trauma as the normal leg could. With this simple care and attention he will continue at work and will make a living for his family as he did in happier days.

Discussion

DR. CHARLES E. MERKERT: I remember when I was working with Dr. McPheeters in 1932 we were doing this then. We used a little tweezer to put in the grafts at that time rather than the needle. The needle technique is an improvement. I have never seen it before and it is something I find very interesting. We had good

takes in 1932 with a number of cases. It is better than trying to pull ulcers together and greatly shortens the time of healing.

DR. RUDOLPH HULTKRANS: I would like to ask Dr. McPheeters if he uses the pinch graft on the surface at any time, that is, a graft taken in about the same way, perhaps a little larger and leaving it on the surface.

DR. KENNETH BULKLEY: Dr. McPheeters has raised the question of pyocyaneus infection. Are there any new ideas of cleaning up such infections in these granulating areas?

DR. H. O. MCPHEETERS: The pyocaneus infection is the most destructive of all infections for skin grafts. I try to clear it up before any attempt at grafting is done. The seed implants will grow if the granulations are firm and vascular.

DR. KENNETH BULKLEY: If Dr. McPheeters will use 6 per cent acetic solution, I think his cases will clear up more rapidly.

GANGLIA OF THE JOINT CAPSULES AND TENDON SHEATHS

HARVEY NELSON, M.D.
Minneapolis, Minnesota

A ganglion as such is not a particularly important clinical entity, but for some reason or other we have had the opportunity of seeing an unusual number of ganglia during the last several years, and as the result of these observations, some of our own ideas regarding ganglia have changed and we have been able to decide on a specific mode of treatment, which has given results that appear to be quite satisfactory. These observations and conclusions may or may not add anything new or of surgical value, but at any rate a review of the subject should be of interest in view of the relative frequency of this condition.

Definition.—A ganglion may be defined as a cystic swelling, unilocular or multilocular, in the neighborhood of a joint or tendon sheath, and consisting of a dense fibrous tissue wall with a secreting lining composed of, or similar to synovial membrane, and containing a clear, jelly-like colloid material or a thick mucinous fluid.

Pathology.—Microscopically the ganglion that usually has reached a stage where surgical removal is done, presents a wall in which the lining membrane closely resembles the synovial membrane of joints. At this stage, the blood supply of the ganglion wall is poor with some of the vessels showing fibrosis and narrowing of the lumen, suggesting that a vascular lesion might be the origin of a degenerative process. It has been described that earlier stages in the development of a ganglion show a large number of spheroidal cells closely packed together and gradually merged into peripheral spindle cells. It has also been described that later a central area appears in which the spheroidal cells undergo mucoid changes, and a central cavity then develops partly filled with a secretion from these cells.

Some claim that there usually is no direct communication with the joint or tendon sheaths, but our observations do not substantiate this.

In our experience, ganglia are by far most common on the dorsal aspect of the wrist, next on the volar aspect of the wrist, next in the flexor tendon sheath at the palmar base of the fingers, and next in order and much less frequent on the dorsum of the distal interphalangeal joints of the fingers, the dorsum of the arch of the foot and about the knee joint. I do not recall now that we have observed any ganglia elsewhere. The ganglia about the wrist may arise either from the wrist joint capsule or the tendon sheaths of the extensor tendons on the dorsal side, or of the flexor carpi radialis on the volar side. It was originally our impression that the majority of these ganglia about the wrist arose from tendon sheaths. However, our present experience is just the opposite, and I would say at least 75 per cent of the ganglia that we have treated surgically have arisen from the wrist joint capsule. The ganglia at the palmar base of the fingers appear to develop from the flexor tendon sheath overlying the metacarpophalangeal joint, whereas those over the dorsum of the distal interphalangeal joint, in our experience, have communicated with the distal interphalangeal joint cavity. Those on the dorsum of the foot usually appear to develop from the intertarsal joints, although we have had several that were connected with the extensor tendon sheaths. We have seen two cases with ganglia associated with the biceps tendon and located at the lateral aspect of the popliteal space. They have also been described as arising from the region of the patellar ligament, but we have had no experience with this particular location other than one case three years ago in which a ganglion underneath the patellar ligament was diagnosed clinically but at the time of operation was found to be a xanthoma, which, of course, may also arise from tendon sheaths. I recall one other interesting case which probably should not be classified in a group of ganglia but which resembles, in a sense, the development of a ganglion and was originally diagnosed as such. This patient had a fusiform fluctuant swelling 2x1.5 inches on the palmar aspect of the wrist with also, some thickening of the proximal half of the palm. At operation, this mass in the wrist was found to communicate with the palmar space by a narrow duct-like channel extending beneath the annular ligament of the wrist. Its lining looked like and was continuous with the synovial membrane of the palmar space but was filled with rice bodies and villi, as was also the palmar space. Microscopically, no diagnosis could be established other than that the specimen showed degenerate tissue with areas of chronic inflammation. There was no recurrence of the ganglion-like mass in the wrist, but the palmar space continued to drain, gradually diminishing for about ten months. A secondary exploration of the palmar space about seven months after the first procedure showed a complete disappearance of the villi and rice bodies. However, sections from the then draining sinus showed masses of fibrous tissue and some fat with a few pieces of stratified squamous epithelium infiltrated by pus and lymphocytes.

One of these pieces showed a few giant cells which suggested the possibility of tuberculosis. The entire process now appears to be arrested with, however, some restriction of flexor tendon function.

Etiology.—I do not believe that anyone has definitely established the etiology of ganglia. Some observers contend that the pathogenesis in all cases is probably traumatic and that a herniation of the synovial membrane occurs through an area of weakness in the joint capsule or tendon sheath. Carp and Stout believe that "A mucinous degeneration occurs in the dense connective tissue adjacent to joints and tendon sheaths which affects the collagen in a number of isolated but closely approximated areas, and as a result, a series of small cysts arise which later coalesce to form the larger cyst containing mucin." They contend that these do not primarily communicate with joint spaces or tendon sheath spaces. King states that the process is not primarily a degeneration of cellular tissue, but a secretion of the synovial cells and that trauma and a constitutional factor are the chief causes.

Obviously no one as yet has established the etiology, and our attempts to explain the cause of ganglia are primarily theoretical explanations of the pathology after it has become established. We have had cases which mechanically at least would appear to be definite herniations of a tendon sheath or joint capsule, and cases, furthermore, particularly involving the tendon sheath, which would appear to be definitely traumatic in origin. We have also had a number of cases where a long narrow tract connects a bulbous ganglion with a joint capsule in such a manner that it hardly would suggest a mechanical herniation as we ordinarily understand it. One thing we have established in all our cases is a definite communication between the ganglion and the tendon sheath or joint capsule, although in a few of these cases it was not certain that this communication was patent. Careful dissection, in other words, has revealed in all our cases that there has been a tract between the subcutaneous ganglion and the joint capsule. In ganglia arising from tendon sheaths, this, of course, can easily be established. I believe that this is a most important factor, and I believe, furthermore, that if we arbitrarily accept the statement that ganglia "do not primarily communicate with joint spaces or tendon sheath spaces," our surgical procedure is going to be inadequate and a certain number of recurrences will result. It is on the basis of the fact that we have proven to our satisfaction that the tendon sheaths and joint capsules are involved, that we have decided on our present procedure of not only removing the ganglion and the ganglion tract but a portion of the sheath or joint capsule as well.

We have recently had a case in point. About two years ago, this girl had a sizeable ganglion on the dorsum of her wrist with a patent tract which extended down to the wrist joint capsule between the radius and scaphoid bone. This was dissected out and the tract tied off at its point of origin in the joint capsule. Within three or four months, she had had what appeared to be a recurrence of this ganglion, and the ganglion eventually developed to a size greater than the original one for which she was operated. A second operation disclosed, first, a multilocular subcutaneous ganglion with a tract which could be identified with some difficulty, extending apparently through the site of the previous tract as it was located in the vicinity of operative scar tissue. This was dissected down to the wrist joint capsule. Adjacent to the origin of this ganglion tract but entirely separated from it were two independent incipient ganglia which could be definitely identified as communicating with the joint cavity. In this case, we had both advanced and early ganglia in the same case where definite communication with the wrist joint cavity could be established. I wonder whether in some of these cases, where a patent communication between a ganglion and a joint cavity or a tendon sheath cavity cannot be established, if the original tract may not have become obliterated or stenosed.

From a practical standpoint, it is probably only of academic interest whether the process of ganglion development begins external to the synovial membrane and does not communicate with the joint space or tendon sheath space, or whether the origin is within the capsule or sheath and an actual communication is present. I believe that it is not only necessary to remove the ganglion as such but also to always remove the ganglion tract and a portion of the capsule or sheath from which it apparently arises as well.

Most of our cases were in women, and most of the cases in men were not in men doing a manual type of labor. This suggests that there is some constitutional factor or possibly a local structural change rather than a true traumatic etiology in the majority of cases. My own impression is that there are some cases of ganglia developing from herniation secondary to trauma but that this is more common in tendon sheaths than in joint capsules. It is also my opinion that structural or cellular changes at least predispose toward the development of ganglia, particularly in those arising from joint capsules.

Diagnosis.—Clinically the diagnosis of ganglia in the average case is obvious. A localized, rounded and smooth swelling, occasionally visibly multilocular, which is tense but not hard is found usually over the dorsal aspect of the wrist, sometimes over the palmar aspect of the wrist and occasionally over the dorsum of the arch of the foot or the regions of the tendons in the popliteal area. They become more prominent when the area is stretched by flexion or extension as the case might be. Pain is not a major factor, but there usually is some tenderness and there frequently is a feeling of weakness. They may be confused with some of the softer types of tumors or in some locations a bursitis. The ganglia found in the flexor tendon sheaths at the palmar base of the fingers are hard and bead-like in character and usually have to be felt rather than seen. The ganglia on the dorsum of the distal interphalangeal joints are also localized, tense but not hard swellings similar in character to those found in the wrist joint but, of course, small.

Treatment.—One only has to review the literature to gain the impression that ganglia are one of those

comparatively minor conditions which are seen frequently and for which a number of different methods of treatment have been recommended without uniform success. The time-worn method of breaking the ganglion by a forceful blow, or firm pressure with the thumbs still is used and in some cases is successful, although I can hardly conceive of this method being permanently successful other than in the simple ganglion of a tendon sheath. Many years ago, Seton recommended the insertion of a thread through a ganglion, and modifications of this method are still used with the theory being that an aseptic reaction is induced, which obliterates the cyst by granulation tissue. Cases of reported cures are given in the literature by simple aspiration of the ganglion with a large bore needle and the subsequent application of a compression bandage for twenty-four or forty-eight hours. Gould advises the insertion of a narrow scalpel or pointed tenotome through the skin and through both sides of the ganglion wall with a subsequent dispersion of the jelly-like contents by pressure of the fingers. The injection treatment of ganglia is of long standing with the earlier injected materials being iodine and carbolic acid. In 1930, McEvedy advocated the injection of sodium morrhuate after aspiration of the ganglion, and this treatment is still used and advocated frequently. Gunther has injected collodion in this manner with good results. Recently Lyle reported a number of cases treated by x-ray radiation at the Presbyterian Hospital and claimed approximately 80 per cent good results.

For our own part, it would seem that the advisable treatment at least in the majority of cases that come to the surgeon is complete excision. Conservative measures certainly are not objectionable in the early ganglia, but in our experience the majority of patients do not come in until they have had the ganglion for some time and the condition is quite well developed. Since our cases indicate that a majority of the ganglia about the wrist joint communicate with the wrist joint and that our operative findings actually demonstrate a communication with the wrist joint, we have hesitated to inject sclerosing solutions. We feel, furthermore, that operative excisions accomplish the highest percentage of cures and can be done with a minimal period of hospitalization and disability. We have found the average patient to be much more satisfied with an operative removal of the ganglion than with conservative measures.

The operative procedure might be described as being a minor operation with a major technique. In our opinion, the procedure should be done under a general anesthetic and under a tourniquet. Rigid aseptic technique is necessary because of the frequent need of exposure of tendons and joint surfaces. We always insert a small amount of sulfanilamide in the wound before closure. In ganglia of the wrist joint area, we prefer horizontal incisions which give adequate exposure and a minimal scar. Longitudinal incisions usually leave a scar which spreads considerably and becomes quite conspicuous. Careful dissection is necessary to avoid rupturing the ganglion and to avoid injury to the adjacent tendons. On the volar surface of the wrist, ganglia are frequently in the neighborhood of the radial artery and nerve and even the median nerve. We have found it of distinct advantage to avoid rupturing the ganglion until its stem or point of communication with the joint capsule or tendon sheath has been identified and dissected free. Failure to do this, I believe, in many cases, has concealed the actual origin of the ganglion and particularly in those cases which have a duct-like communication extending down to the wrist joint. In too many cases, it has been assumed that all of the ganglion had been dissected free or that it communicated in some manner with a tendon sheath, whereas the actual communication, which was with the wrist joint, had been severed and left in site to permit a future recurrence of the ganglion. Some time ago we made a practice of tying off or closing the base of a ganglion with a suture of catgut. This I now believe is a mistake, and in this respect, at least, a ganglion should not be considered in the light of a hernia. It is not necessary to "tie off the sac." Observations have shown that there are some structural changes in the joint capsule or tendon sheath at the site of the origin of the ganglion and even in the neighboring area. Assuming that there is some histological change within the region of or in the capsule or tendon sheath itself which causes or permits the development of at least some of these ganglia, it is important to remove this tissue to prevent future recurrence. We have, therefore, found it advisable to not only carefully dissect out and remove the entire ganglion and its entire communicating tract but also a portion of the joint capsule or tendon sheath as well. No attempt at any closure of this defect should be made. We have had one case where it was necessary to remove an area of the joint capsule ¼ inch to ⅜ inch in diameter before normal capsule was encountered. In spite of this, this patient's convalescence was remarkably free of pain and swelling. No ill effects seem to occur from removal of a section of joint capsule or tendon sheath and leaving this excised area open. Postoperatively we have preferred to apply a small palmar plaster splint for two weeks to immobilize the wrist. With this support, there is a minimum of discomfort and healing is probably assisted. The majority of these cases only lose a few days from work.

Conclusion

In conclusion, we would like to emphasize the fact that although ganglia offer comparatively minor problems, they are nevertheless fairly common clinical entities for which the patient seeks symptomatic and cosmetic relief and as such are entitled to careful surgical consideration and treatment. In the region of the wrist joint, it is our opinion that a much higher percentage of ganglia communicate with the wrist joint or wrist joint capsule than is commonly believed. We feel that the method of treatment of choice is surgical excision which should be done most carefully so as to include all of the ganglion, the communicating ganglion tract and a portion of the joint capsule or tendon sheath from which the ganglion develops, without any attempt to close this defect. Whether a ganglion develops as

a herniation, from some structural change in the synovial membrane, or from some degenerative process in the adjacent connective tissue makes no practical difference in the treatment as the communication between the ganglion and the joint capsule or tendon sheath can usually be established and when established should be completely excised. We have noticed no ill effects from not closing the resulting defect and on the contrary it facilitates the procedure and results in less postoperative reaction.

Discussion

DR. CHARLES E. MERKERT: I should like to ask Dr. Nelson whether the "tennis elbow" is ever a ganglion, or is it always a bursitis or myositis?

DR. HARVEY NELSON: We have operated on a number of individuals with so-called "tennis elbow" which is, I believe, either a bursitis or tenosynovitis located usually in the vicinity of the lateral condyle of the humerus. The primary symptom here is pain, particularly on grasping objects or rotating the forearm with force, such as in using a screw driver, lifting, or some similar effort. We have had a few cases where we felt that a small mass or lump could be palpated. In the majority of cases, however, there is no well defined sac, such as we find in a ganglion. It has been our experience that in those cases of "tennis elbow" that we have operated upon, we have found no ganglion, and relief is usually obtained by stripping the fascia off from the lateral condyle of the humerus and making a few longitudinal incisions through the tendonous attachment in this area.

DR. STANLEY R. MAXEINER: I should like to call attention to a procedure which has helped us on more than one occasion and which, I believe, was originally described by Murphy. When the sac is ruptured it may be packed with moist cotton and reëstablished so that its entire outline may be more easily followed and dissection is thus greatly simplified.

UNUSUALLY SEVERE FACIAL INJURY

KENNETH BULKLEY, M.D.
Minneapolis, Minnesota

This case is presented with apology and only because the presentation was specifically requested by a number of our members who saw the patient on admission. Possibly it is of value as illustrating or emphasizing two points: (1) the remarkable efficacy of the sulfa drugs; and (2) the fact that, even though damage seems irreparable, it can be worthwhile to painstakingly make an effort.

This man, forty-two years of age, was admitted to Northwestern Hospital on September 4, 1942, with extensive facial damage, presently to be described, more revolting in its appearance and more hopeless from the viewpoint of repair than anything I have seen since the days of shell-torn faces in France. He was working at the time of his injury, lying on his back on the ground, when a huge piece of structural steel swinging on a crane tilted and crushed his face. Strangely enough he was at no time unconscious and despite the extensive damage and hemorrhage at no time did his condition become such that a transfusion was necessary. On admission this man was found to be practically scalped. There was a lacerated wound beginning in the right upper forehead, extending just above the ear to end to the left of the occiput, the entire flap being thrown over the top of his skull. This flap included periosteum, and in the exposed right parietal area there was a long linear skull fracture without depression. The entire wound was ground in deeply with dirt, iron-rust and coal. There was a large "V" shaped scalp wound just above the left ear, each limb of which was about 3 inches in length; this also was filthy. The lower jaw was not fractured. The entire face above this was crushed in and loose so that one could grasp the upper teeth and move the superior maxillæ in any direction. The upper alveolar margin was intact. The nose was crushed flat and torn wide open at it base. Both nasal bones and the bony portion of the septum were lying loose on the skin of his left cheek; they were discarded. One could insert three fingers between the eyes through the base of the nose directly into the nasopharynx. From this opening there extended a wound the entire length of the left eyebrow, pulverizing the outer two-thirds of the supra-orbital ridge and pushing the entire upper eyelid downward exposing the left eyeball, which lay forward over the edge of the infra-orbital ridge. The ridge was depressed and driven in on both sides with the maxillæ. The superior oblique was torn loose from the eyeball and one could look directly into the retro-orbital space and see the stretched optic nerve. From the viewpoint of repair the situation presented was most discouraging. Fortunately I did not remove the eye, though such was my impulse. Something had to be done, however, and, accordingly, under intravenous sodium pentothal anesthesia repair was started. It was necessary to put a stitch through the tongue to prevent choking and not until four days later was it possible to remove this. The scalp was not even shaved. It was merely roughly clipped with scissors. No antiseptic of any sort, such as we used to know, was used in any of his wounds. His skull and the ripped-off portion of scalp were thoroughly scrubbed with large quantities of soap and water. Much of the ground in dirt, however, was still in place when his scalp was replaced. The entire scalp was replaced and sutured, with no drains whatsoever, after the insertion of large quantities of sulfanilamide. Only minimal débridement was done. As already stated, both nasal bones and the bony portion of the septum of the nose were discarded. The eyeball was replaced in the socket, the orbit was filled with a large quantity of sulfanilamide, the superior oblique was tucked back into position, and the left supra-orbital laceration, together with the defect at the base of the nose, closed. I was most fearsome of getting a blowing sinus at this area, such a sinus being difficult to later repair. It was possible to replace the superior maxillæ fairly satisfactorily but it was totally impossible to hold them in place inasmuch as a Waldron head plaster could not be immediately applied because of the extensive scalp wounds. Furthermore, it seemed highly improbable that this man would live. He was returned to bed in fair condition without the necessity for transfusion but the necessity for twenty-four-hour nursing to prevent suffocation. Forty grams of sulfanilamide

in all were buried in this man's wounds and every wound healed by primary union and no blowing sinus was obtained at the root of the nose. At no time were there any indications of sulfanilamide poisoning. Unfortunately no blood level readings were made. His healing was so prompt that ten days later it was possible to remove all dressing from his head, to remove all stitches and put a universal Waldron head-cast in place. With the assistance of Dr. Patterson, twelve days after this man was hurt, he was again anesthetized, screws were placed in his superior maxillæ and his upper jaws brought into place and there maintained by the usual complicated, somewhat difficult, methods so cleverly devised by Dr. Waldron.

As already stated, I present him tonight to show the value of enormous amounts of buried sulfanilamide and to show you a man who, although badly scarred, is not deformed to the extent that he cannot meet the public and earn his livelihood and be a normal member of society—and this despite his original appearance which seemed hopeless. For some little period of time this man had double vision. You will note now, however, that his eyes track perfectly and even though his left optic nerve was terrifically stretched he is regaining normal vision in his left eye. There was no hemorrhage within the ball. His teeth occlude beautifully, so that, as he, himself, says, he is able to do justice to a tough steak. Due to the extensive damage at the base of his nose he has been having difficulty with his lacrymal sacs and both of these will in the near future be removed. He has no complaint of headaches or dizziness. He is now, only five months after injury, ready to return to work as an expert structural iron worker.

NEW SULFA TRIUMPHS OVER SCARLET FEVER, EYE DISEASE

Two new sulfa drug triumphs are among major medical advances reported in the *Journal of the American Medical Association* (July 10).

A relatively new sulfa drug, called sodium sulfathiazole desoxyephedrine and originally developed for nasal infections, greatly speeds recovery in the first, acute stage of shipyard eye (epidemic keratoconjunctivitis), Dr. Harry S. Gradle, of Chicago, and Dr. G. H. Harrison, of Waukegan, Ill., report. Instead of lasting from fourteen to eighteen days, as it does in untreated cases, the first stage of this disease was reduced to from three to seven days with the new treatment.

Small daily doses of sulfadiazine effectively controlled an outbreak of scarlet fever at a U. S. Naval station, Lieut. Robert F. Watson, Lieut. Comdr. Francis F. Schwentker, Comdr. J. E. Fetherton and Dr. Sidney Rothbard, of the U. S. Navy Research Unit at the Hospital of the Rockefeller Institute, New York, report. They state that there is now enough evidence to justify the use of this drug in controlling epidemics not just of scarlet fever but "of streptococci infections of the respiratory tract."—*Science News Letter*, July 17, 1943.

Rabies has been eliminated or kept out of Great Britain, Sweden, Switzerland, Australia and Hawaii; the United States has some 9,000 cases a year, mostly in dogs, which could be prevented by proper measures.

INDUSTRIAL HEALTH

(Continued from Page 732)

A register of 150 physicians interested in extending their practice in industry has been established in the school.

In Minnesota, there is developing a greater consciousness of the industrial importance of the state and a growing recognition of the responsibility to protect the health of the industrial worker. This has been reflected to some extent by the passage of recent legislation providing for the compensation of all occupational disease and the establishment of certain standards of safety and health in the workroom environment. This legislation in turn will stimulate a greater desire on the part of management to provide more adequate medical service and to control industrial health hazards in the plants.

Minnesota Men Needed

The need for a list of Minnesota physicians interested in industrial practice is being felt more and more keenly. Repeated requests for names of such physicians have come to the Division of Industrial Health of the State Department of Health. With this in mind, the Committee on Industrial Health of this Association at its last meeting decided to conduct a survey of the physicians of the State to determine what physicians are interested in industrial practice, on what basis, such as full-time or part-time, and whether or not they are interested in attending a short course in industrial medicine. It is thought that if a sufficient number indicate interest, a two or three-day course could be arranged at the University of Minnesota. A questionnaire is being sent out to members of the Association in industrial areas. All are requested to be prompt in making reply by means of the self-addressed postcards which are provided.

PENICILLIN IN TREATMENT OF GAS GANGRENE

Penicillin, the potent germ-fighter from mold, is "far superior" to the sulfa drugs in the treatment of gas gangrene, Dr. Lucile R. Hac and Dr. Agnes C. Hubert, of Chicago, report (*Proceedings, Society for Experimental Biology and Medicine*, May).

Their report is based on laboratory experiments with mice and guinea pigs infected with Clostridium welchii, the germ most frequently found in cases of gas gangrene. A single injection under the skin of 50 Florey units of penicillin given at the time the gas gangrene germs were inoculated into the mice protected 98 per cent of the animals. Repeated small doses gave as good protection as single large doses. Delay in treatment lowers the survival rate, but not appreciably unless the delay is over three hours.—*Science News Letter*, July 17, 1943.

★ In Memoriam ★

JOHN L. ROTHROCK

Dr. John L. Rothrock, for many years a prominent obstetrician and gynecologist of Saint Paul, died July 5, 1943, at the Miller Hospital, Saint Paul, at the age of eighty.

JOHN L. ROTHROCK

Born on a farm near Mifflintown, Pennsylvania, July 12, 1863, Dr. Rothrock obtained his bachelor of arts degree at Gettysburg College and his medical degree from the University of Pennsylvania in 1888. He served as an intern at Wilkes-Barre and Philadelphia for two years.

After a year in private practice in Saint Paul he became assistant to Dr. Alexander J. Stone, a prominent Saint Paul surgeon. Two years later he spent a year and a half in postgraduate study of obstetrics, gynecology and bacteriology in Philadelphia, Baltimore and abroad. In 1894 he resumed practice in Saint Paul. In 1896 he was appointed assistant to Dr. Stone, who was city health officer, and he established the laboratory of the City Health Department. This office he filled for three years.

For many years he was on the teaching staff of the Medical School of the University of Minnesota, eventually becoming full professor. In 1913, after the death of Dr. Parkes Ritchie, he declined to head the department of obstetrics and gynecology.

Dr. Rothrock joined the Miller Clinic in 1921, but retired from active practice in 1930. In appreciation of his services to the Ramsey County Medical Society, a banquet was tendered him by the society at the Minnesota Club, Saint Paul, December 17, 1931. He was one of the moving spirits who were responsible in 1897 and 1898 in establishing the Ramsey County Medical Society Library.

Following his retirement he summed up his medical experience in a book entitled "Ten Years of Obstetrics and Gynecology in Private Practice," which appeared in 1933. He contributed numerous articles in the local medical journals in the early days.

Dr. Rothrock never married. He was a member of the Masonic order and the Reformation Lutheran Church. In 1941 he made a donation of $50,000 to his alma mater, Gettysburg College, and the following year gave a similar amount to the Northwest Lutheran Theological Seminary in Minneapolis.

Dr. Rothrock was an outstanding member of his profession in his specialty. He was a fine teacher, as many graduates of the University Medical School can attest. The younger members of the profession found him generous with his scientific knowledge. He never felt the need for an automobile and was a great walker, for a time spurning the elevator which served his office several flights up. His greatest joy was his visits to his cabin on Ruby Lake near Grand Rapids where he would entertain his friends, doing all the cooking and dish washing himself.

* * *

FRANK B. MORRISSEY

Dr. Frank B. Morrissey, Saint Paul, died June 16, 1943 at the Veterans Hospital, Fort Snelling, after an illness of about ten years.

Dr. Morrissey was born September 5, 1891 at Glen Haven, Wisconsin. He attended Beloit College in Wisconsin and received his medical degree from the University of Minnesota Medical School in 1918.

He served as first lieutenant in the Medical Corps during World War I and following the war was a major in the Minnesota National Guard.

Dr. Morrissey passed the American Board of Internal Medicine, was a fellow of the American College of Physicians, a member of the staff of Saint John's Hospital and was a member of the Ramsey County Medical Society, the Minnesota State and American Medical Associations. He was also a member of the American Legion and the Disabled American Veterans.

Following service in World War I he was associated in practice with the late Dr. Charles Lyman Greene and later with Dr. F. J. Plondke.

Dr. Morrissey is survived by his wife and two daughters, Mrs. Herman Berg and Barbara Morrissey, all of Saint Paul.

WILLIAM G. PARADIS

Dr. William G. Paradis for the past thirteen years the medical director of Sunnyrest Sanatorium, Crookston, Minnesota, died July 7, 1943, at his home near the sanatorium.

Dr. Paradis was born in Bessemer, Michigan, July 16, 1899. He received his medical degree from the University of Minnesota in 1926 and served his internship at Hackensack, New Jersey. In 1927 he became resident staff physician at Glen Lake Sanatorium serving for two years.

In 1929 Dr. Paradis went to Crookston as superintendent of the Sunnyrest Sanatorium, a position he held until his untimely death. He was a member of the staffs of Bethesda and Saint Vincent's Hospitals of Crookston and was a past president of the Minnesota Sanatorium Association. From 1941 to 1942 he held the office of president of the Red River Valley Medical Society. He was also a member of the National Tuberculosis Association and the American Sanatorium Association, the American College of Chest Physicians and the Trudeau Society. He was a member of the Red River Valley Medical Society, the Minnesota State and American Medical Associations.

Dr. Paradis was married in 1928 to Eleanor O'Day. His widow and two daughters, Virginia and Charlene survive.

* * *

ALBERT B. SWEET

Dr. Albert B. Sweet of Hopkins, Minnesota, died at the Veterans' Hospital, July 6, 1943, at the age of ninety-five. He would have been ninety-six on July 14.

Dr. Sweet was born July 14, 1847, in Walden, Vermont. He served with Company F, 4th Minnesota Volunteer Infantry and was wounded while accompanying General Sherman on his march to the sea.

After the war he taught school in Brown County, Minnesota, and in the blizzard of 1873 was credited with saving the lives of his pupils marooned with him in a school house for two days.

Dr. Sweet, also a graduate pharmacist, studied medicine at the University of Minnesota and operated a drugstore when he practiced at Hanley Falls, Minnesota. He was surgeon for the Minneapolis and Saint Louis Railroad in that territory.

He moved to Minneapolis in 1891 and practiced there until the following year when he moved to Hopkins. He retired from practice in 1922. Mrs. Sweet died in 1937.

GEORGE H. WALKER

Dr. George H. Walker, a member of the Winona Clinic since 1926, died July 2, 1943, at the age of sixty-three.

Dr. Walker was born in Halden, Missouri, January 5, 1880, and completed his high school training in Pawnee City, Nebraska. He received the degree of Bachelor of Science in 1902 from the University of Nebraska. He spent one year as state chemist for Nebraska and another year in the government assay office in Breckenridge, Colorado, before studying medicine at the University of Minnesota, where he graduated in 1908. Following his internship served at Saint Luke's Hospital in Saint Paul he began practice at Fairfax, Minnesota, remaining there from 1910 to 1921.

Dr. Walker took postgraduate work in eye, ear, nose and throat at the University of Minnesota, and in 1924-5 spent five months in Vienna. He was associated with the Miller Clinic, Saint Paul, from 1923 to 1926.

On January 25, 1911, he married Louise Feton of Saint Paul. He is survived by his widow and one son, Lieut. George L. Walker, medical corps of the army, now stationed in England, and one brother, J. E. Walker of Pawnee City, Nebraska.

Dr. Walker was a member of the Winona County Medical Society, the Minnesota State and American Medical Associations.

PLASMA CAN GREATLY AID CONDITIONS BESIDES SHOCK

Shock is not the only condition which can be helped by blood plasma, Dr. Max M. Strumia, of Bryn Mawr, Pa., told the American Society of Clinical Pathologists meeting in Chicago.

Dr. Strumia was selected by the society's general research committee for the 1943 Ward Burdick Award.

Plasma, he reported, can be of great aid in conditions unrelated to shock in which the body is holding water far in excess of the normal amount without visible dropsy. Patients in this condition, among whom may be many who have had operations on the stomach and digestive tract, are also generally in a state of protein depletion. The digestive tract itself may become dropsical, interfering with digestion and absorption of proteins.

Plasma, Dr. Strumia believes, may aid recovery in these patients.—*Science News Letter*, July 10, 1943.

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* * *

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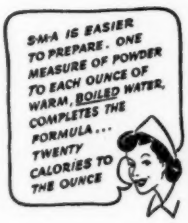
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REPORTS and ANNOUNCEMENTS

AMERICAN CONGRESS OF PHYSICAL THERAPY

The American Congress of Physical Therapy will hold its twenty-second annual scientific and clinical session September 8, 9, 10 and 11, 1943, inclusive, at the Palmer House, Chicago. Rehabilitation is in the spotlight today—physical therapy plays an important part in this work.

The annual instruction course will be held from 8:00 to 10:30 A.M., and from 1:00 to 2:00 P.M. during the days of September 8, 9 and 10, and will include a round-table discussion group from 9:00 to 10:30 A.M., Thursday, September 9. The scientific and clinical sessions will be given on the remaining portions of these days and evenings. A feature will be an hour demonstration showing technique from 5:00 to 6:00 P.M. during the days of September 8, 9 and 10.

All of these sessions will be open to the members of the regular medical profession and their qualified aides. For information concerning the instruction course and program of the convention proper, address the American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago, Illinois.

CIVIL SERVICE EXAMINATIONS FOR MEDICAL GUARD-ATTENDANTS AND MEDICAL TECHNICAL ASSISTANTS

The Civil Service Commission has announced an examination to secure Medical Guard-Attendants and Medical Technical Assistants for the U. S. Public Health Service.

Applicants for *Medical Guard-Attendant* positions whichpay $1,970 (counting overtime compensation) a year must be registered graduate nurses, or have had at least three years' service in the Medical Corps of the Army or Navy, or have had eighteen months' service as hospital attendant-guards.

Applicants for the *Technical Assistant* positions which pay $2,433 a year (counting overtime compensation) must possess the qualifications for Medical Guard-Attendant and in addition must have had 1 year of training or experience in one of the following options: Clinical Laboratory Technique, Pharmacy, or X-ray Laboratory Technique.

Further information and application forms may be obtained at first- or second-class postoffices, Civil Service Regional Offices, and the Commission in Washington, D. C.

FALL CLINIC SCHEDULE

The Division of Social Welfare Medical Unit of the Bureau for Crippled Children has announced its Fall Clinic Schedule for 1943 as follows:

September 11—Winona. Counties of Winona, Wabasha, Olmsted, Fillmore and Houston.

September 18—Fergus Falls. Counties of Ottertail, Wilkin and Wadena.

September 25—Marshall. Counties of Lyon, Lincoln, Redwood, Yellow Medicine, and Lac qui Parle.

October 2—Bemidji. Counties of Beltrami, Lake of the Woods, Clearwater, and Hubbard.

October 16—Virginia. Counties of St. Louis, Cook, and Lake.

October 30—Crookston. Counties of Polk, Norman, and Mahnomen.

November 6—Little Falls. Counties of Morrison, Todd, Crow Wing, and Mille Lacs.

November 13—Mankato. Counties of Blue Earth, Martin, Faribault, Waseca, Brown, Watonwan, Nicollet, and Le Sueur.

MINNESOTA HOSPITAL ASSOCIATION

Rev. L. B. Benson of Bethesda Hospital, Saint Paul, succeeded to the presidency of the Minnesota Hospital Association this year, having been chosen president-elect in 1942. The following officers were elected to serve with him:

First Vice President—Dina Bremness, R.N., Glenwood.
Second Vice President—Sister Viola, Little Falls.
Trustee (1944)—J. H. Mitchell, Rochester.
Trustee (1944)—Dr. Thomas Broadie, Saint Paul.
Trustee (1945)—Sister Anna Berglund, Minneapolis.
Trustee (1945)—W. W. Sherman, Grand Rapids.
Immediate Past President—Dr. Walter P. Gardner, Anoka.

Executive Secretary—Dr. A. F. Branton, Willmar.

The matter of the president-elect was left for decision later on in the year.

MISSISSIPPI VALLEY MEDICAL SOCIETY

The ninth annual meeting of the Mississippi Valley Medical Society will be held at Quincy, Illinois, September 29 and 30, 1943.

Some twenty clinician-teachers will present the program, the first day being an All-Chicago program with a stag buffet supper in the evening. The annual banquet, a feature of the meeting, will also be held. The list of speakers includes Brigadier General Fred W. Rankin, Dr. George W. Post, Dr. Warren H. Cole and Dr. Paul B. Magnuson of Chicago, Dr. John de J. Pemberton and Dr. Samuel F. Haines of Rochester, Minnesota, Dr. Willis M. Fowler of the University of Iowa and Dr. Julius Jensen of Washington University.

The program will be practical in nature and will be keyed to wartime medicine. All ethical physicians are invited to attend. A program may be obtained from the secretary, Dr. Harold Swanberg, 209 W. C. U. Building, Quincy, Illinois.

NORTHERN MINNESOTA MEDICAL ASSOCIATION

The annual meeting of the Northern Minnesota Medical Association will be held in Duluth, Minnesota, Saturday, August 28, 1943, with scientific and business sessions at St. Mary's Hospital. Following is the tentative program for the meeting:

Morning Session—9:00 A.M.

Relation of Dentistry to Eye, Ear, Nose and Throat
JOSEPH B. GAIDA, M.D., St. Cloud
Management of Hand Injuries
R. F. MUELLER, M.D., Two Harbors
Polycythemia Vera, Diagnosis and Treatment
R. J. HODAPP, M.D., Willmar
Modifications in Methods of Intravenous Anesthesia
J. S. LUNDY, M.D., Rochester
Discussion of the Sulpha Compounds
W. W. SPINK, M.D., Minneapolis
Diagnosis and Prognosis in Cancer of Rectum and Colon
W. A. FANSLER, M.D., Minneapolis.
Obstetrical Problems
R. J. MOE, M.D., Duluth
Status of Retrograde and Intravenous Pyelography
WALTER E. HATCH, M.D., Duluth

Luncheon Banquet—12:30 P.M.

Hotel Duluth

Speaker—A. W. Adson, M.D., Rochester
"Current Economic Problems"

Afternoon Session—2:00 P.M.

Clinico-Pathological Conference—
E. L. TUOHY, M.D., ARTHUR H. WELLS, M.D., J. R. McNUTT, M.D., FRED MAGNEY, M.D., A. J. SPRANG, M.D., GEORGE BERDEZ, M.D., AND J. E. BLUMGREN, M.D., Duluth
Medical Problems of Selective Service and the Army
LT. COL. ROBERT B. RADL, Saint Paul

Business Meeting—5:00 P.M.

A cordial invitation is extended to all interested physicians to attend this one-day session.

SOUTHERN MINNESOTA MEDICAL ASSOCIATION

The annual meeting of the Southern Minnesota Medical Association will be held Monday, August 23, 1943, in Austin, with scientific sessions in the Austin Central High School.

Morning Session—9:00 A.M.

The Isolation from Milk Supplies and the Thermal Death Point in Milk of Specific Types of Streptococci in Relation to Respiratory and Other Epidemic Infections
E. C. ROSENOW, M.D., Rochester
Intrapleural Pneumolysis
KARL H. PFUETZE, M.D., Cannon Falls
The Use of Anticoagulant Drugs, Heparin and Dicumarol, in Medicine and Surgery
NELSON W. BARKER, M.D., Rochester
Abruptio Placenta
ROY N. ANDREWS, M.D., Mankato
Clinical Experience with Bilateral Orchidectomy in the Treatment of Carcinoma of the Prostate
JOHN L. EMMETT, M.D., Rochester
Duhrssen's Incisions
D. E. MOREHEAD, M.D., Owatonna
Myasthenia Gravis (Motion Picture)
SECTION ON NEUROLOGY, MAYO CLINIC
Weakness. A Round Table Discussion
E. J. KEPLER, M.D., Rochester; J. C. McKINLEY, M.D., Minneapolis; C. R. KAMMAN, M.D., Saint Paul; C. KOENIGSBERGER, M.D., Mankato

Luncheon and Business Meeting—12:15 P.M.

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MEDICINE—Two Weeks' Intensive Course starting October 4. Two Weeks' Course in Gastro-Enterology starting October 18.

FRACTURES & TRAUMATIC SURGERY—Two Weeks' Intensive Course starting October 18.

GYNECOLOGY—Two Weeks' Intensive Course starting October 18. Clinical and Diagnostic Courses.

OBSTETRICS—Two Weeks' Intensive Course starting October 4.

OPHTHALMOLOGY—Two Weeks' Intensive Course starting September 27. Course in Refraction Methods, October 11.

OTOLARYNGOLOGY—Two Weeks' Intensive Course starting September 13.

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Afternoon Session—1:30 P.M.

Presidential Address: Some Intangibles in Medicine
A. E. SOHMER, M.D., Mankato

Case Reports:

Rhinolith
J. F. SCHAEFER, M.D., Owatonna

Desmoid Tumor
D. B. JUDD, M.D., AND J. C. MASSON, M.D., Rochester

Pneumococcus Septicemia with Agranulocytosis
P. A. LOMMEN, M.D., Austin

The Clinical Use of Penicillin
WALLACE E. HERRELL, M.D., AND D. R. NICHOLS, M.D., Rochester

The School Child's Hearing
HORACE NEWHART, M.D., Minneapolis

A Technique for the Easy Characterization of Abnormal Mental Traits
J. C. MCKINLEY, M.D., AND S. R. HATHAWAY, PH.D., Minneapolis

The Mobile Unit of the Red Cross Blood Donor Center
Lt. E. H. PAWSAT, M.C., U.S.N.R., and Lt. A. C. PETERSON, M.C., U.S.N.R.

The Use of Blood and Plasma in General Practice
T. H. SELDON, M.D., Rochester

The Use of Plasma in Combat
Lt. COMMANDER R. A. BENSON, M.C., U.S.N.R.

Entertainment for the ladies will consist of a luncheon at the Austin Country Club followed by bridge or golf.

The luncheon and business meeting for members of the Association will be held at St. Augustine's High School. Both morning and afternoon sections of the scientific program will be held at Central High School.

Physicians are cordially invited to attend.

LEGAL MEDICINE CONFERENCE AND SEMINAR

Conference.—The Massachusetts Medico-Legal Society in conjunction with the Department of Legal Medicine of Harvard Medical School has arranged for an all-day Conference to be held at the Mallory Institute of Pathology, Boston City Hospital, on Wednesday, October 6, 1943. This will be open to any registered physician, lawyer, police official, criminal investigator, senior medical student or other person whose duties are associated with medico-legal topics.

It will include lectures, demonstrations, and informal discussions concerning many subjects in legal medicine, particularly stressing results of some more recent methods. No limit has been made for the number of conference attendants, there is no fee, and advance application is not essential. Advance notice of intention to attend would be helpful, however, and should be addressed to Dr. William H. Watters, Department of Legal Medicine, Harvard Medical School, Boston.

Seminar.—The Harvard Medical School, Courses for Graduates will offer a Seminar in Legal Medicine to occupy the entire week, October 4 to 9, inclusive. It is planned particularly for medical examiners and coroner's physicians, but will be open also to any other suitable graduate of an approved medical school.

The course will be practical rather than theoretical and will consist of autopsy demonstrations, technique and interpretation of laboratory tests, study of the day-by-day cases of a medical examiner, round table conferences, and the many subjects now included in the widening field of legal medicine. In order that each participant may receive the maximum benefit, the enrollment has been limited to fifteen. For the Seminar the fee is $25. Application should be made on or before October 1 to Harvard Medical School, Courses for Graduates, 25 Shattuck Street, Boston, Massachusetts.

Of General Interest

Dr. D. M. Thysell of Minneapolis has reported for service in the Navy.

* * *

Dr. Asher A. White of the Nicollet Clinic, Minneapolis, left for Knoxville, Tennessee, August 1, to join the special military unit there.

* * *

Dr. L. L. Kallestad of Hutchinson reported for military service as orthopedic surgeon with a special unit at Knoxville, Tennessee, July 15.

* * *

Captain A. I. Balmer, M.C., formerly of Pipestone, is now stationed in foreign service in Northwest Canada. He is at present Acting Regimental Surgeon of his unit.

* * *

Dr. L. H. Flancher of the State Department of Health, University of Minnesota, has accepted appointment as head of the department of health in Iowa, with headquarters in Des Moines.

* * *

Dr. and Mrs. F. J. Pelant moved in June from New Ulm to Owatonna, where Dr. Pelant has opened an office for the practice of medicine. Dr. Pelant had practiced in New Ulm since 1916.

Lt. Col. M. R. Johnson, M.C., AUS, of the Interstate Clinic, Red Wing, recently completed a course in maxillary facial surgery at Columbia University, New York. He is now located at Camp Crowder, Missouri.

* * *

Dr. John M. Waugh of Rochester addressed a meeting of the Upper Peninsula Medical Society at Iron Mountain, Michigan, Wednesday, July 7, on the subject "Indications for and Contra-indications to Vaginal Hysterectomy."

* * *

Dr. B. Borreson, medical director of the Oakland Park Sanatorium, Thief Rivers Falls, will supervise the work at Sunnyrest Sanatorium, Crookston, until such time as a successor to the late Dr. William Paradis is appointed.

* * *

Dr. Gerhard Knutson of Belview has joined the unit at Knoxville, Tennessee, for special military service, and has turned over his practice to his associates, Dr. Vernon Smith and Dr. Malcolm Pearson for the duration of the war.

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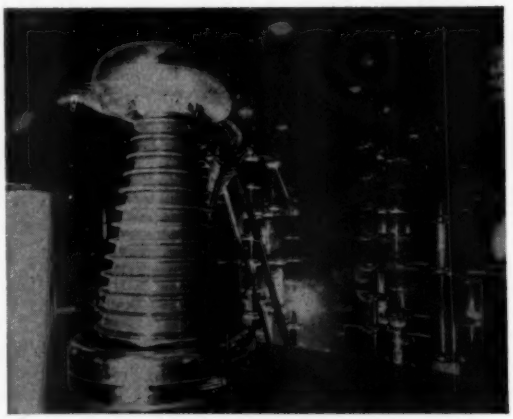

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Dr. S. Marx White of Minneapolis has been reappointed a member of the Glen Lake Sanatorium commission for a three-year term by the Hennepin Board of County Commissioners. Those serving with Dr. White on the board are Lawrence Nygren and William F. Kunze, former mayor of Minneapolis.

* * *

Dr. John J. Stratte, a graduate of the Rush Medical School, University of Chicago, recently completed his internship at Ancker Hospital, Saint Paul, and opened an office for the practice of general medicine in Warren, Minnesota. Dr. J. J. Stratte, Sr. of Grand Forks, will assist his son in surgical work.

* * *

The Goodhue County Medical Society, under the supervision of Dr. Milton Levine of Cook County Hospital, Chicago, and Dr. David State of the University of Minnesota, established a 60-unit plasma bank at Red Wing, Minnesota, on July 11. The persons using the plasma will be charged a small processing fee and will be asked to provide donors to replace the bank.

* * *

Dr. William W. Moir, formerly of Stillwater, whose heroism as an army medical captain was described in a recent issue of *Look* magazine, has been promoted to Major. Major Moir won the distinguished service cross in North Africa when, disregarding his own safety, he continued attending wounded men, although twice wounded in the hand himself. Major Moir is at present stationed at Ft. Benning, Georgia.

Word has been received of the death of Dr. Volt Hung Tom, a graduate of the University of Minnesota Medical School in 1940. Doctor Tom was a battalion medical officer with the Army and before entering military service was a staff member of the Lansdale, Pennsylvania, Hospital. He died in the South Pacific about two months ago from malaria.

* * *

Dr. Harold A. Reif joined the staff of the Nicollet Clinic on August 1, 1943 in the Department of Urology, succeeding Dr. G. J. Thomas, who has left for California. Dr. Reif comes from Cleveland General Hospital and the Western Reserve University. While in Cleveland he was associated with Dr. H. R. Trattner, well-known urologist of that city. Previous to his being in Cleveland, he was associated with Dr. W. M. Coppridge, urologist, Duke University, Durham, North Carolina. Dr. Reif's position with the Western Reserve University was that of Demonstrator in Urology.

* * *

Dr. Earl V. Wetzel, Jr., former resident surgeon on the staff of St. Mary's Hospital, Minneapolis, and now an officer in the Medical Corps of the Army, has been advanced in rank from Captain to Major, according to a special announcement to MINNESOTA MEDICINE from headquarters of the Los Angeles Civilian Schools Area, Army Air Forces Technical Training Command.

Major Wetzel holds the post of Area Surgeon, exercising supervision over all medical activities of the A.A.F. Technical Training Command in California. The Area is one of the largest regional operations of the

Technical Training Command, the Minnesotan being in charge of medical service and personnel of eighteen detachments throughout the state.

Major Wetzel is a graduate of the University of Minnesota Medical School. Commissioned as a first lieutenant in November, 1941, he has won rapid advancement to his present rank.

* * *

News of the University of Minnesota Medical School contains the following items of interest:

A new annual appropriation of $15,000 has been made by the State Legislature to the Medical School for special research in the field of cancer.

A continuation of the grant of $10,000 a year has been authorized by the Citizens Aid Society to the Medical School in support of cancer research and the program of cancer education. The annual gift of $5,500 by the Citizens Aid Society in support of the George Chase Christian Professorship in Cancer Research will also be continued.

A grant of $5,000 from the Jane Coffin Childs Memorial Fund for Medical Research has been made for the support of the work of Dr. John J. Bittner and Dr. Robert G. Green and associates in the Departments of Physiology and Bacteriology on the nature and mode of action of the milk influence in mammary cancer.

A grant of $3,500 a year for a two-year period has been made by The Commonwealth Fund of New York toward the support of the Psychiatric Clinic for Children. Toward the support of this Clinic the Stevens Avenue Home of Minneapolis will continue their grant of $10,000 for the year beginning July 1, 1943.

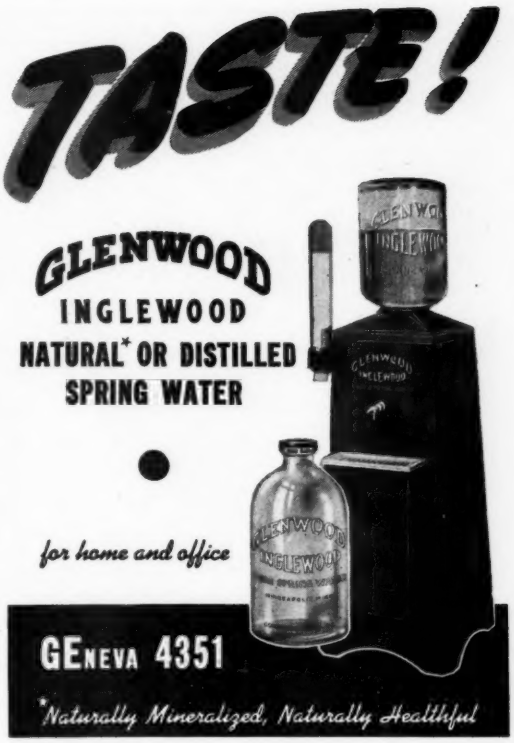
The University of Minnesota Medical School has accepted a grant of $3,000 from Parke, Davis and Company, to establish a Fellowship in Clinical Hematology in the Department of Anatomy, under the supervision of Dr. Hal Downey.

Dr. J. C. McKinley, Head of the Department of Medicine and Director of the Division of Nervous and Mental Diseases, has been named Head of the newly established Department of Neuropsychiatry, which includes the Divisions of Adult Psychiatry and Child Psychiatry.

Dr. Cecil J. Watson has been named Head of the Department of Medicine and Director of the Division of Internal Medicine.

Dr. Raymond N. Bieter, Professor of Pharmacology, has been appointed to the Headship of the Department of Pharmacology to succeed the late Dr. Arthur D. Hirschfelder.

The following promotions have been announced: Dr. Harold A. Whittaker, to Clinical Professor of Preventive Medicine and Public Health; Dr. Ralph T. Knight, to Clinical Professor of Anesthesia; Dr. Wallace D. Armstrong, to Professor of Physiological Chemistry. The promotions of Dr. Clarence Dennis, to Associate Professor of Surgery; Dr. N. Logan Leven, to Clinical Associate Professor of Surgery; Dr. Charles E. McLennan, to Associate Professor of Obstetrics and Gynecology; Dr. Charles E. Connor, to Clinical Associate Professor of Ophthalmology and Otolaryngology;



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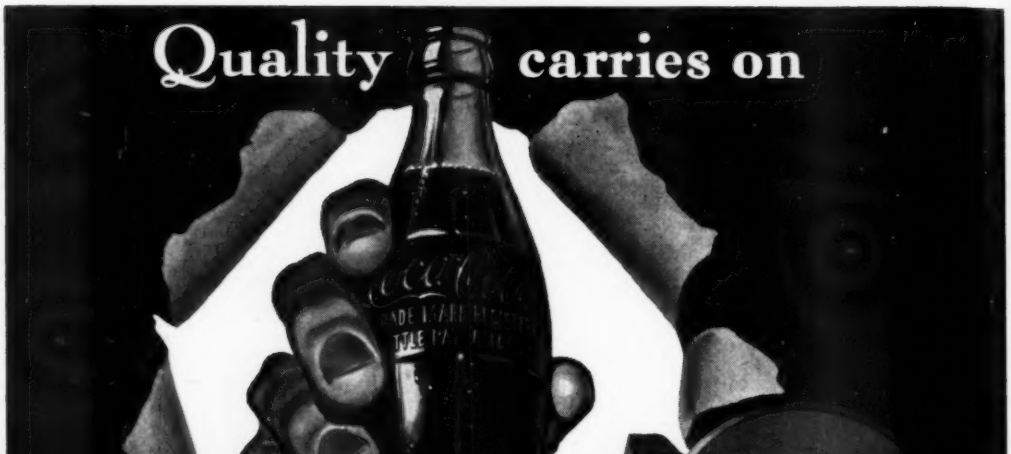

Dr. Joseph T. Cohen, to Clinical Associate Professor of Pediatrics; Miss Ruth B. Freeman, to Associate Professor of Preventive Medicine and Public Health; Mr. George O. Pierce, to Associate Professor of Preventive Medicine and Public Health; Dr. Edward A. Regnier, to Clinical Associate Professor of Surgery; Dr. Thomas J. Kinsella, to Clinical Associate Professor of Surgery; Dr. Frank W. Whitmore, to Clinical Associate Professor of Neuropsychiatry. The promotions of Dr. Frederick W. Hoffbauer, to Assistant Professor of Medicine; Dr. Thomas Lowry, to Clinical Assistant Professor of Medicine; Dr. Alphonse Walch, to Clinical Assistant Professor of Medicine; Dr. James K. Anderson, to Clinical Assistant Professor of Surgery; Dr. Willard D. White, to Clinical Assistant Professor of Surgery; Dr. Hewitt B. Hannah, to Clinical Assistant Professor of Neuropsychiatry.

Word has been received that General Hospital No. 26, the University of Minnesota hospital unit, was established near the Tunisian front. With its staff of fifty-six doctors, 105 nurses and 500 enlisted men and some 600 tons of equipment which included tents, beds and apparatus, it was established just in time to take a load of 1,500 patients sent back from the evacuation and base hospitals in the final stages of the Tunisian fighting. Consisting for the most part of tents and with little furnishings generally considered essential for a general hospital, much equipment had to be improvised from what was at hand. A high-pressure gasoline system of hot water heating was improvised from empty gas drums. In spite of handicaps, the hospital was prepared to handle efficiently the many casualties who required not emergency care but the type of care furnished by any large general hospital. It is reported that General Hospital No. 26 is one of the few stations in the Army where saluting is rigidly required of nurses.

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* * *

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

MEDICAL MALPRACTICE. Louis J. Regan, M.D., LL.B., Member State Bar of California. 256 pages. Price, $5.00, cloth. St. Louis: C. V. Mosby Co., 1943.

METHODS OF TREATMENT. Eighth Edition. Logan Clendening, M.D., Clinical Professor of Medicine, Medical Department of University of Kansas, Attending Physician University of Kansas Hospitals; and Edward H. Hashinger, A.B., M.D., Clinical Professor of Medicine, Medical Department of University of Kansas, Attending Physician, University of Kansas Hospital, Attending Physician St. Luke's Hospital, Kansas City, Missouri. 1033 pages. Illus. Price, $10.00, cloth. St. Louis: C. V. Mosby Co., 1943.

A SYNOPSIS OF CLINICAL SYPHILIS. James Kirby Howles, B.S., M.D., M.M.S. Professor of Dermatology and Syphilology and Director of the Department Louisiana State University School of Medicine, Senior Visiting Physician Charity Hospital of Louisiana at New Orleans, Visiting Physician French Hospital, Mercy Hospital, Hotel Dieu, Southern Baptist Hospital and Touro Infirmary. 671 pages. Illus. Price, $6.00, flexible binding. St. Louis: C. V. Mosby Co., 1943.

YOUR OWN STORY. Marion L. Faegre, Assistant Professor of Parent Education, Institute of Child Welfare, University of Minnesota, and Special Consultant to the Minnesota Department of Health. 52 pages. Illus. Paper binding. Minneapolis: Minnesota Department of Health, 1943.

CONVULSIVE SEIZURES: HOW TO DEAL WITH THEM. A Manual for Patients, Their Families and Friends. Tracy J. Putnam. Price $2.00. Pp. 168. Philadelphia: J. B. Lippincott Company, 1943.

This book, written by a world-famous authority, is evidence of a healthy trend in the present-day medical education of the lay public. It is a little book written primarily for the sake of the patient and his family—and as such, will bring understanding and new hope to those thousands to whom the word "epilepsy" holds bewilderment, terror and even disgrace.

The book is divided into nine short chapters. Chapter 1 deals in general with seizures and their causes. The author presents briefly and clearly the various types of seizures and the common causes. This chapter, as well as the entire text, is written in non-technical terms and easily understandable language. Dr. Putnam's figurative representation of seizures and the situations which produce them is especially valuable—and clear.

Chapter 2 is devoted to the diagnosis and cause of seizures. He stresses the need for diagnostic study and briefly discusses the special techniques employed. The physician will find he is already familiar with this as well as most other parts of the text—but to the patient, the importance of such diagnostic procedures is adequately pointed out. Doctor Putnam also points out that the patient's own physician can manage the situation alone and that a specialist is not essential unless some unusual problem arises or treatment fails to go smoothly. In the reviewer's opinion this point is well taken, and will help to clear up a misconception present in the minds of many.

Chapter 3 tells of the important part the patient and his family play and suggests ways and means of reporting symptoms, keeping charts or records of seizures—the type, frequency, et cetera. The author also

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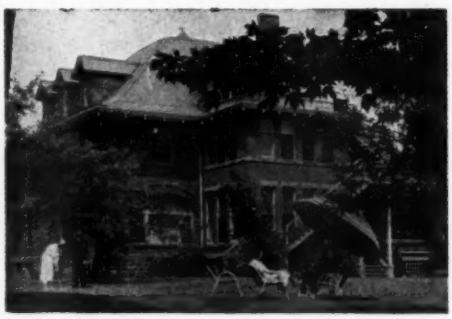

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emphasizes the importance of regularity in taking medications and adhering to strict schedules.

Chapter 4 deals with the actual handling of the patient during a seizure and emphasizes the importance of reporting symptoms, type of convulsion, records, et cetera, to the physician.

Chapter 5, while not containing any information new to the physician, briefly outlines the various forms of treatment and types of medication. Contained in this chapter is a concise outline of general precautions to be taken by those suffering from seizures. In the reviewer's opinion, this particular part is presented too briefly and the value of the book would be increased if more precautions were added.

Chapters 6 and 7 deal with the general outlook not only for the individual afflicted but for control of the disorders, and will serve adequately in answering many of the questions that naturally plague the patient and his family.

The final two chapters are of less importance to the patient and the book would be just as valuable if they were omitted.

Doctor Putnam definitely states in his introduction that the book is not intended for professional use. It is the belief of the reviewer, however, that he is too conservative in his estimation of its value. The book is an excellent one and contains an immense amount of accurate and valuable information, adequately condensed and outlined, for the physician, the student, and teacher of epileptic pupils, as well as for the patient and his relatives. In my opinion, the book is to be highly recommended.

PHILIP K. ARZT, M.D.

REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY. Issued under the direction and supervision of the Council on Pharmacy and Chemistry of the American Medical Association. Cloth. Price, $1.00. Pp. 207. Chicago: American Medical Association, 1943.

Through the years the size of this volume has grown with the increased work of the Council on Pharmacy and Chemistry until the present edition has the same number of pages as the book published in 1908, which covered the Council's first four years of activity. Some of the functions of this group are well known, but a more thorough understanding of the Council's scope may be gained from the annual reprint. This volume epitomizes that phase of the Council's work which may be said to be collateral to the "acceptance" of drugs—the informative consideration of current medical problems in the interest of rational therapeutics. It contains reports of studies by private investigators which were originally published in *The Journal* under the sponsorship of the Council such as preliminary discussions of new developments in therapeutics and timely articles on the status of recognized agents as well as reports of omission or rejection of products from New and Nonofficial Remedies. It also offers a record of current decisions on matters of Council policy.

Several of the reports are of particular interest for various branches of medical science: the use of bulk ether in anesthesia, the absorption of surgical gut (catgut), the higher types of antipneumococcus rabbit serum, the surgical and medical treatment of animals with experimental hypertension and the status of racemic epinephrine solutions for oral administration. The reports in this small compact volume represent expert medical consensus and are proffered to aid in the consideration of the value of therapeutic agents.